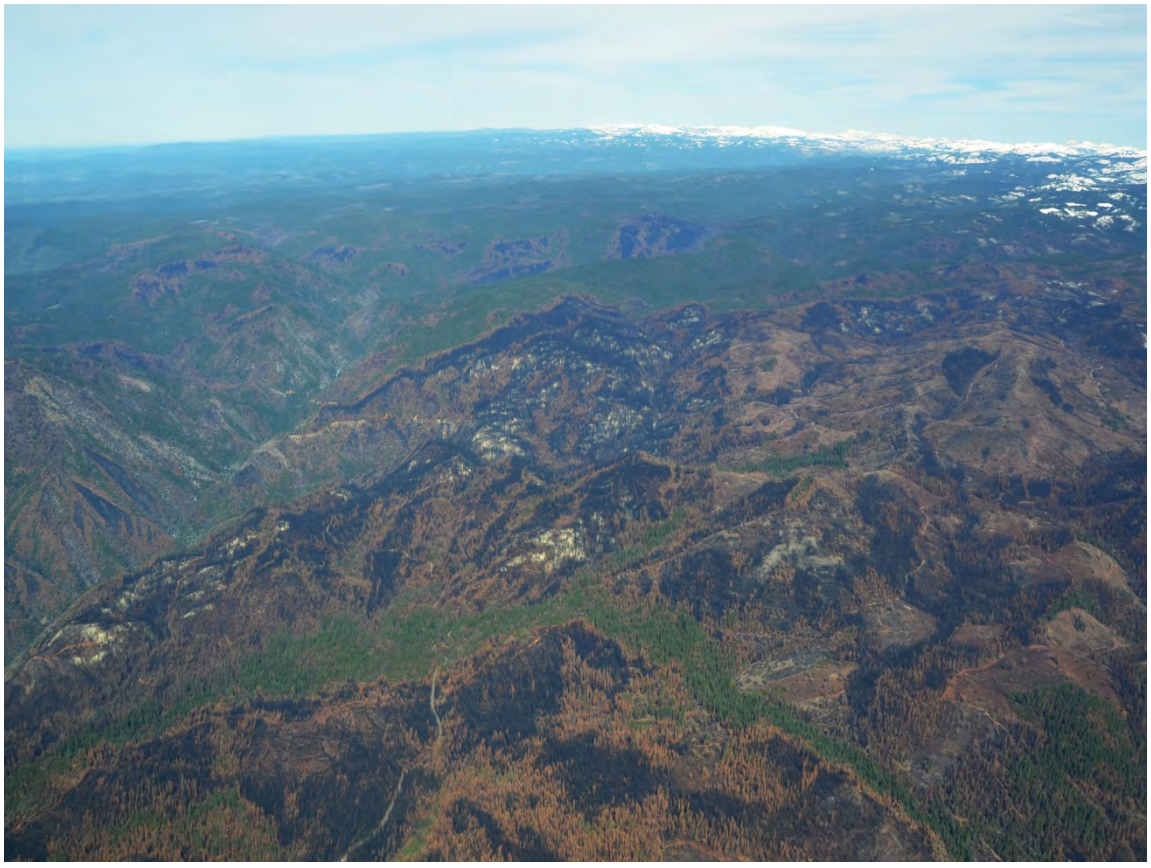
United States Department of Agriculture

Rim Fire Recovery (43033)
Record of Decision



Forest Service

Stanislaus National Forest

R5-MB-270

August 2014

Rim Fire Recovery (43033)

Record of Decision

Stanislaus National Forest

Lead Agency: USDA Forest Service

Cooperating Agencies: None

Responsible Official: Susan Skalski, Forest Supervisor
Stanislaus National Forest
19777 Greenley Road
Sonora, CA 95370
(209) 532-3671

Information Contact: Maria Benech, Team Leader
Stanislaus National Forest
19777 Greenley Road
Sonora, CA 95370
(209) 288-2116

Abstract: An Environmental Impact Statement (EIS) that discusses alternatives for the Rim Fire Recovery project is available for public review in the Forest Supervisor's Office at 19777 Greenley Road, Sonora, CA, 95370. This Record of Decision (ROD) documents the Deciding Officer's decision pertaining to the alternatives identified in the EIS.

Cover Photo: view north from over Corral Creek at the heart of the Rim Fire Recovery project area shows a mosaic of vegetation burn severities. The Clavey River drainage is on the left, Reed Creek is in the middle-ground and Hull Creek is in the background. EIS Appendix P (Photos), which is available in the project record, contains a wide-range of other photos related to this project.

Table of Contents

List of Maps and Figures

List of Tables

1. Introduction

This Record of Decision documents my decision for the Rim Fire Recovery project. I and my staff spent the last year designing a project that helps restore the land impacted by the Rim Fire, the largest conifer forest fire in California history, while simultaneously providing for public safety, ecological integrity, scientific research, and socio-economic benefits.

The path to reaching this decision was not an easy one, and I found no simple solution that can fully achieve all the goals that I, the Forest Service, and members of the public have for the Rim Fire area. In some instances public safety goals are in tension with environmental protection goals; in other instances socio-economic goals are in direct tension with fuel reduction goals; and, in other instances the needs of one wildlife species are in tension with the needs of another. Recognizing that no perfect decision exists, I did my best to balance all these important goals, with the intent of providing a decision that best serves the public interest.

Photo 1: The evacuated Groveland Ranger Station as fire begins to cross Highway 120 on August 19, 2013. Schools closed due to smoke and thousands of households evacuated during the fire.

As discussed in more detail in this Record of Decision (ROD) and in the lengthy Environmental Impact Statement (EIS) that supports this decision, my six main goals for this project include all 5 elements from the Purpose and Need (EIS Chapter 1.03) and one additional Research objective associated with Alternatives 3 and 4 (EIS Chapter 2.01): 1) capture economic value through salvage logging; 2) provide worker and public safety; 3) reduce fuels for future forest resiliency; 4) improve road infrastructure to enhance hydrologic function; 5) enhance wildlife habitat; and, 6) provide opportunities for scientific research. I believe that the decision described in the following pages can effectively achieve all these goals.

Providing a comprehensive EIS covering treatments across an area the size of the Stanislaus National Forest portion of the Rim Fire was a huge undertaking in and of itself. The technical complexity, including carefully considering and analyzing the information provided in the huge volume of public scoping comments and comments on the Draft Environmental Impact Statement (DEIS) alone normally takes many months. Given the limited time window required to provide the comprehensive analysis as fire-killed trees deteriorate in timber value, and continue to pose a safety risk, required extraordinary effort and commitment of agency resources and staff. Adding significant staff met the challenge to provide quality analysis in a timely manner; however, other challenges remained such as addressing the complex public natural resource and social issues resulting from the Rim Fire.

Photo 2: August 22, 2013 view of the Rim Fire at 5 percent containment looking north with the Clavey and Tuolumne River canyons separated by Jawbone Ridge in the lower middle-ground. The smoke column left of center is from the Corral Creek and Femmons Meadow area. The smoke on the right is from the Camp Mather and Yosemite area. The smoke rising out of the lower left is from the Tuolumne canyon between Pine Mountain Lake and Paper Cabin Ridge. (Loretta Tam)

Time is of the essence since the Rim Fire started just over one year ago, and the trees killed by the fire have already lost substantial economic value. With every passing day, the deterioration process will continue, to the point that it becomes economically infeasible to conduct the project. Therefore, it is imperative to begin implementing the project in the upcoming weeks and months to maximize the amount of work that can be achieved before this year's operating season ends in the late fall. Any delay jeopardizes the agency's ability to offer economically viable contracts; without viable contracts, the Rim Fire Recovery (Rim Recovery) project will not be implemented. This would mean that public and worker safety would be threatened for years to come, critical environmental restoration work would not occur, major research opportunities would be lost, and the area would be at heightened risk of yet another extreme fire like the Rim Fire.

Photo 3: The Rim Fire resulted in large swaths of high vegetation burn severity with almost total consumption of woody material and no soil cover.

I realize that my decision will not please every member of the public; however, I believe it strikes a reasonable balance that is responsive to the vast majority of public input I received, and is the best solution to achieve the multiple public benefits for which this project was designed.

1.01 OVERVIEW OF THE RIM FIRE AND ITS IMPACTS

The Rim Fire started in a remote section of the Stanislaus National Forest on August 17, 2013 and burned 257,314 acres, or 400 square miles, including 154,530 acres of National Forest System (NFS) lands, becoming the largest conifer forest fire in California's recorded history. The fire burned with high vegetation burn severity across 98,049 acres (38% of the burned area) consuming nearly all woody materials located on the ground (USDA 2014e).

Photo 4: The South Fork Tuolumne River, at Rainbow Pool on February 27, 2014 with mud and ash in water immediately after 2-2.5 inches of rain, flows directly into the Tuolumne Wild and Scenic River and Lake Don Pedro.

The Rim Fire threatened the City and County of San Francisco's Hetch Hetchy Water and Power facilities which provide drinking water and power for over 2.5 million San Francisco Bay Area

customers. The San Francisco Public Utility Commission (SFPUC) spent an estimated $900,000 to purchase alternative energy when two of its three hydroelectric powerhouses were taken off-line during the fire. The SFPUC estimates it will cost several million dollars to repair damage to its facilities from the fire.

The fire also directly impacted the Don Pedro Reservoir on the Tuolumne River and Lake McClure on the Merced River, which serve the greater Modesto, Turlock, and Merced areas. Together, these two reservoirs provide drinking water and power for over five hundred thousand San Joaquin Valley customers, as well as irrigation water for over 350,000 acres of farmland.

The portion of the Stanislaus National Forest affected by the Rim Fire has a long history of recreational use. Highway 120, passing through the burn area, is one of the major gateways to Yosemite National Park, which generates recreation-related tourism and numerous economic benefits. The Rim Fire affected summer camps, private resorts and other recreational facilities on public and private lands.

Photo 5: Rim Fire smoke towers over Groveland and Yosemite on Labor Day. Air quality reached unhealthy levels from Yosemite to the San Joaquin Valley, according the National Weather Service.

Due to the dangerous conditions, access is currently closed to the general public in much of the burned area beyond some core travel corridors. Recreation opportunities that traditionally draw thousands of people per year to Tuolumne and Mariposa Counties are limited.

Wildfires that are unusually large, complex, and resistant to control, such as the Rim Fire, are described as extreme fires or "mega-fires" (Long 2014). In the Research Brief: Impacts of Extreme Fire in the Sierra Nevada, Long 2014 describes the impacts of extreme fires as:

> Extreme fires like the Rim fire become giant by spreading rapidly under extreme weather conditions. This extreme fire behavior kills large swaths of trees, including large, old-growth trees that historically survived many lower intensity fires. The resulting patches of dead trees and severely burned soils are larger than what these landscapes typically experienced in recent centuries. Patches of fire-killed trees can become short-term haven for many wildlife species, including deer, woodpeckers and other birds, as well as fire-following grasses, forbs, shrubs, and young trees. However, gains for fire-following species may come at the expense of many old-forest species, such as California spotted owls that have to find new nest sites. Patches of dead trees may be so large that is takes long periods for seeds of coniferous trees to reach the expanses of burned areas and reestablish forests. During that period, shrubs may become dominant, and high-intensity fires may recur before trees have grown enough to survive fire. Such repeated fires may be more likely in areas that have flammable shrubs and heavy fuels resulting from fire-killed trees. As a result, extreme fires can transform large areas of forest into fields of shrubs and small trees that persist for decades or even centuries. Within large patches of dead trees, reestablishing mature forest, understory diversity, and habitat structures within decades may be infeasible.

Those are just a few examples of the serious adverse impacts of extreme fires such as the Rim Fire.

The State of California Sierra Nevada Conservancy describes the following adverse impacts of the Rim Fire in several "fact sheets" and other materials available online at: http://www.sierranevada.ca.gov/our-region/rim-fire[1].

Impacts of the Rim Fire were Widespread

- On August 23rd, Governor Brown declared a state of emergency for the City of San Francisco due to the threat that the fire posed to water and power resources at Hetch Hetchy Reservoir which serves 2.6 million people in the Bay Area.
- An Air Alert was issued for San Joaquin, Stanislaus, Mariposa, Merced, Madera, Fresno, Kings, Tulare, Tuolumne, and Kern Counties due to smoke impacts from the Rim Fire. Air alerts are issued when conditions leading to ozone formation occur, placing the valley at risk for exceeding Federal ozone standards. Ozone, even at low levels, can harm human health and affect our forests and wildlife.
- Air quality warnings were issued for Lake Tahoe, Carson City, and Reno - more than 100 miles away from the fire. Some hotels in South Lake Tahoe experienced as much as a 20% drop in business as a result of the smoke. The Washoe County School District and Nevada Interscholastic Activities Association cancelled outdoor school activities including football games and recess.

The Rim Fire Released Carbon Stored in the Forest as Greenhouse Gas that Effects our Climate

- Initial estimates indicate that the Rim Fire released 11,352,608 metric tons of greenhouse gas emissions, roughly equivalent to annual greenhouse gas emissions from 2.3 million cars.

Impacts from the Rim Fire will be Long-Term

- The fire burned so hot in some areas, five times hotter than boiling water, that it changed soil chemistry and structure. These "high burn" areas are more erosion-prone.
- Denver Water is still spending millions of dollars to stem erosion 12 years after the Hayman Fire burned across 215 square miles in the foothills south of Denver. The Rim Fire consumed nearly 2 times that area at 402 square miles.
- Vegetation across nearly 100,000 acres, about 40% of the area, burned at high severity. These dead zones leave a scarcity of seed sources and make it hard for the forest to regrow.

Removing Excess Vegetation Makes our Forests Healthier and can Protect Homes and Lives

- Prior fuels treatments allowed firefighters to effectively protect cabins, a campground, and the communities of Groveland, Big Oak Flat and Pine Mountain Lake.

The Rim Fire Affected Important Wildlife Habitat

- The fire affected 100,000 acres of winter range for migratory California mule deer.
- The fire destroyed three-quarters of the known great gray owl nests in the area, and one quarter of the areas where spotted owls and goshawks roost and nest.
- The fire also impacted suitable habitat for the federally threatened California red-legged frog and the endangered Sierra Nevada yellow-legged frog.

[1] Including: The Rim Fire: Why investing in forest health equals investing in the health of California at http://www.sierranevada.ca.gov/factsheets/10.31rimfirefactsheet.pdf; Rim Fire Forest Facts at http://www.sierranevada.ca.gov/our-region/rim-fire/rimfireforestfacts.pdf; Rim Fire Greenhouse Gas Emissions and Air Quality Impacts at http://www.sierranevada.ca.gov/our-region/rim-fire/rimairqualityfacts.pdf; and, Rim Fire Wildlife Facts at http://www.sierranevada.ca.gov/our-region/rim-fire/rimwildlifefacts.pdf

The Economic Impact of the 2013 Rim Fire on Natural Lands describes the economic and ecological impacts of the fire, estimating environmental benefits lost from $100 million to $736 million in the first year after the Rim Fire[2].

Even as I write this decision, other fires burned or are burning in California[3]. These include the 5,000 acre El Portal Fire, on the Stanislaus National Forest and Yosemite National Park, just south of the Rim Fire area.

My hope is that through this project, we will not only restore a portion of the landscape damaged by the Rim Fire, but will also reduce the risk of another extreme fire burning through this area in upcoming decades.

Photo 6: A firefighter surveys the smoldering ruins of the Berkeley Tuolumne Camp near Groveland on August 26, 2013. (Don Bartletti/Los Angeles Times)

Photo7: High severity burn with total consumption of woody material and no remaining soil cover in a small creek.

Photo 8: The Rim Fire, just outside the City and County of San Francisco Camp Mather on August 22, 2013.

[2] Online at: http://www.eartheconomics.org/FileLibrary/file/Reports/Earth%20Economics%20Rim%20Fire%20Report%2011.27.2013.pdf
[3] Nearly 12,000 lightning strikes reported in state, sparking fires online at: http://www.latimes.com/local/lanow/la-me-ln-lightning-strikes-spark-fires-20140812-story.html. Lightning starts more North State fires online at: http://www.redding.com/news/local-news/lightning-starts-more-north-state-fires

1.02 LOCATION

The Rim Recovery project is located within the Rim Fire perimeter in the Stanislaus National Forest on portions of the Mi-Wok and Groveland Ranger Districts in Mariposa and Tuolumne Counties. The project boundary includes all NFS lands within the fire plus a few isolated locations where road and roadside improvements extend slightly outside the fire perimeter. Figure 1.02-1 shows the location of the Rim Recovery project Proposed Action treatment units within the Rim Fire perimeter and the boundaries of the Stanislaus National Forest and Yosemite National Park.

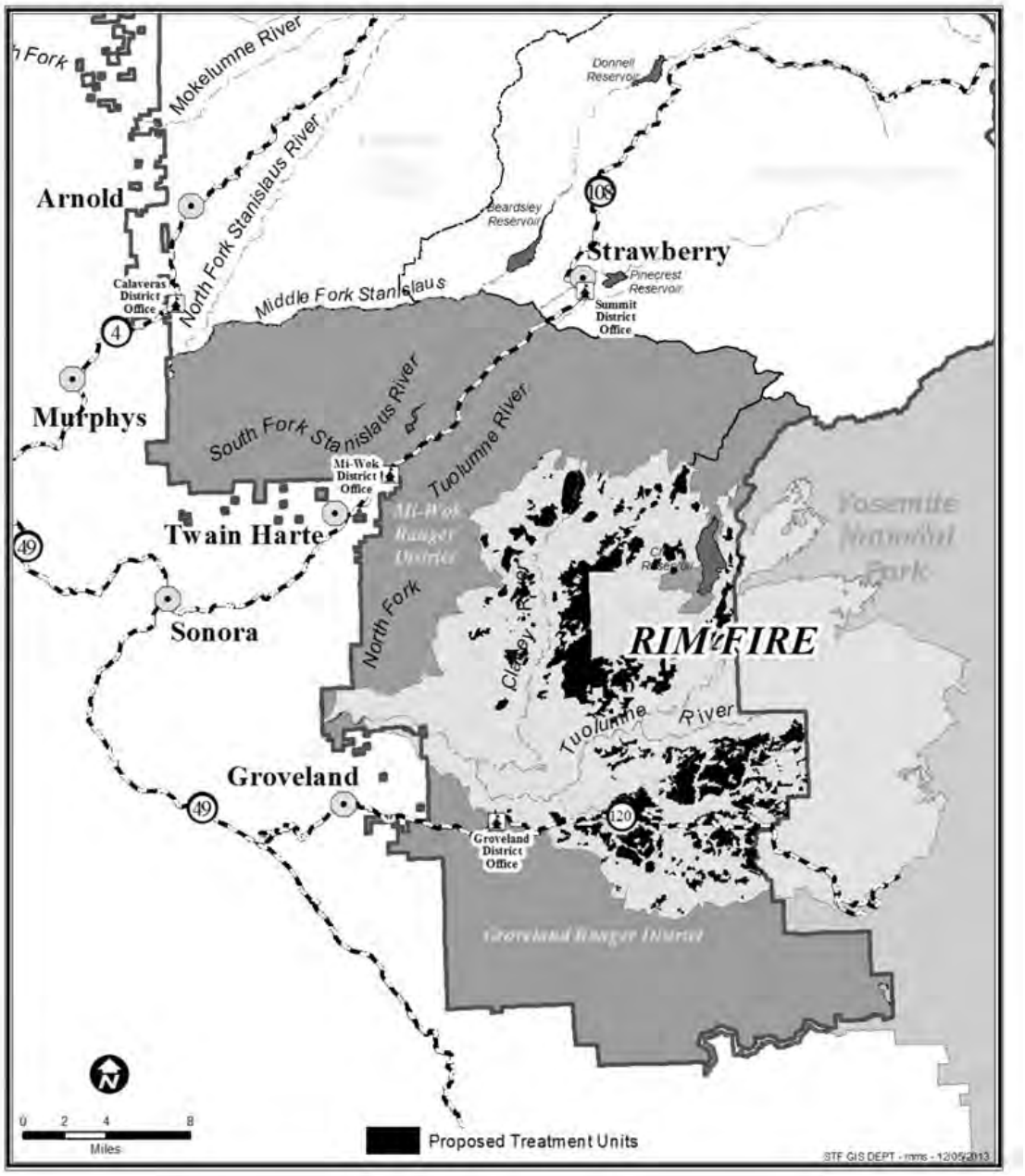


Figure 1.02-1 Rim Fire Recovery Proposed Action Treatment Units

2. Decision

Based on my review of the EIS and its supporting documentation along with extensive discussions with agency staff, other governmental bodies, and members of the public, I decided to select Alternative 4, with the modifications described below (hereafter referred to as "Modified Alternative 4"). A large scale Modified Alternative 4 Map in the separate map package displays the approved treatment units and other information associated with my decision.

I selected Modified Alternative 4 because it meets all the elements of the project's Purpose and Need (EIS Chapter 1.03), while also responding to significant issues related to: Health and Safety; Snag Forest Habitat; New Road Construction; Wildlife Habitat; and, Soil and Watershed Impacts (EIS Chapter 1.08). While the original Alternative 4 also meets the Purpose and Need and responds to the significant issues noted above, I decided to scale back the scope of Alternative 4 based on public comment on the DEIS (USDA 2014d) and recent input from representatives of the environmental community and timber industry. I will further explain the reasons for my decision in the next section, but first I would like to describe my decision according to the following decision components and approved actions.

2.01 DECISION COMPONENTS AND APPROVED ACTIONS

The EIS (Chapter 2.01) describes six Primary Objectives that reflect the Purpose and Need and respond to the significant issues raised by the public during the NEPA process: 1) Economic Value; 2) Public and Worker Safety; 3) Fuel Reduction; 4) Enhance Hydrologic Function; 5) Enhance Wildlife Habitat; and 6) Research. Modified Alternative 4, like the original Alternative 4, meets all of these objectives.

Modified Alterative 4 implements the approved actions framed within the following "Decision Components" which are described in detail as activity groups in EIS Chapter 2.01. Each decision component describes how Modified Alternative 4 compares to the original Alternative 4. The approved actions listed below generally track with the Primary Objectives, but in some instances, the actions may achieve multiple objectives (e.g., salvage logging serves both the Economic Value and Fuel Reduction objectives).

Table 2.01-1 below compares the treatments proposed under the original Alternative 4 with those approved under Modified Alternative 4. Table B.01-1 (Appendix B) lists the treatment units along with the primary objectives for each unit included in Modified Alternative 4. The project record includes a large scale Record of Decision Comparison Map showing the proposed treatment units from the original Alternative 4 and the approved treatments under Modified Alternative 4.

Salvage and Fuel Reduction

Modified Alternative 4 reduces the amount of salvage logging and associated fuel treatments from that proposed in the original Alternative 4. Modified Alternative 4 approves salvage logging and fuel reduction on 15,383 acres including: 14,495 acres of ground based; 651 acres of helicopter; and, 237 acres of skyline treatments. Modified Alternative 4 approves fuels treatments on 26,890 acres[4] including: 2,671 acres of biomass removal; 1,150 acres of mastication; 1,450 acres of drop and lop; 18,381 acres of machine piling and burning; and, 3,238 acres of jackpot burning.

[4] Modified Alternative 4 fuel reduction treatment acres include fuels reduction on 11,507 acres that do not include salvage.

Hazard Tree Removal and Fuel Reduction

Modified Alternative 4 includes the same hazard tree removal and associated fuel treatments as proposed in the original Alternative 4, with the addition of roadside hazard removal within units excluded from salvage. Modified Alternative 4 approves felling and removing of hazard trees and fuel reduction adjacent to about 325 miles (17,335 acres) of forest roads outside of approved salvage units. Some non-merchantable trees may be felled and left in place.

Roads

Modified Alternative 4 includes the same road treatments as proposed in the original Alternative 4 except for about 10 miles of roads that accessed units excluded from salvage and fuels reduction. Modified Alternative 4 approves: reconstruction of 315 miles and maintenance of 209.3 miles of permanent roads; construction of 6.1 miles of new temporary roads; reconstruction of 17.5 miles of existing temporary roads (these temporary roads will be decommissioned after use and are not intended to be a permanent part of the NFS road system); and, reconstruction of 0.6 miles of existing temporary routes that will be converted back to their original use after the conclusion of treatment actions. Table B.02-1 (Appendix B) lists the road treatments approved in Modified Alternative 4. Modified Alternative 4 does **not** include new construction of permanent NFS roads.

Wildlife Habitat Enhancement

Modified Alternative 4 includes the same wildlife habitat treatments as proposed in the original Alternative 4. Modified Alternative 4 approves 4,087 acres of critical deer winter range treatments, within the Stanislaus National Forest and adjacent to Yosemite National Park to achieve desired forage/cover ratios and to provide for deer passage and access (Appendix A, item 13.g).

Research

Modified Alternative 4 includes the same research activities as proposed in the original Alternative 4, although consolidated into fewer units. Modified Alternative 4 provides opportunities for research scientists to undertake an integrated package of 7 studies and activities to investigate key questions related to fire management and landscape restoration after an extreme fire (EIS Appendix D).

Forest Plan Amendment

Modified Alternative 4 does **not** include the Forest Carnivore Connectivity Corridor (FCCC) Forest Plan Amendment as proposed in the original Alternative 4; however, Modified Alternative 4 now includes one additional management requirement (similar to Alternative 1) to manage the same FCCC salvage units to Old Forest Emphasis Area (OFEA) snag and down woody material retention standards (Appendix A, item 13.a).

Management Requirements

Modified Alternative 4 includes the same management requirements as proposed in the original Alternative 4 with one additional management requirement to protect habitat for fisher and marten (Appendix A, item 13.a). Modified Alternative 4 approves the Management Requirements shown in Appendix A.

Table 2.01-1 Comparison of Original Alternative 4 and Modified Alternative 4

Treatments[1]	Original Alternative 4	Modified Alternative 4
Salvage ground based (acres)	24,176	14,495
Salvage ground based/skyline swing (acres)	16	0
Salvage aerial based helicopter (acres)	2,568	651
Salvage skyline system (acres)	1,066	237
Subtotal Salvage (acres)	**27,826**	**15,383**
Hazard Tree Removal (miles)	324.6	324.6
Subtotal Hazard Tree Removal (acres)	**15,692**	**17,335**[2]
Total Hazard Tree and Salvage (acres)	**43,518**[3]	**33,081**[3]
Biomass Removal	7,975	2,671
Mastication	1,309	1,150
Drop and Lop	1,798	1,450
Machine Piling and Burning	20,320	18,381
Jackpot Burning	3,650	3,238
Total Fuels (acres)	**35,052**[3]	**26,890**[3]
New Construction (miles)	0.0	0.0
Reconstruction (miles)	315.0	315.0
Maintenance (miles)	209.3	209.3
Subtotal Construction and Maintenance (miles)	**524.3**	**524.3**
Temporary Road (new miles)	8.4	6.1
Temporary Road (existing miles)	22.1	17.5
Temporary Use – Revert (miles)	3.3	0.6
Subtotal Temporary Roads (miles)	**33.8**	**24.2**
Total Roads (miles)	**558.1**	**548.5**
Private Roads Needing Right-of-Way (miles)	11.2	11.2
Rock Quarry Sites	7	7
Potential Water Sources	94	94

[1] Salvage includes removal of dead trees and fuel reduction; Hazard Tree includes removal of hazard tree and fuel reduction.
[2] Hazard Tree acres increase due to addition of roadside hazard removal along roads within units excluded from salvage.
[3] Salvage and Hazard Tree acres overlap with Fuel Reduction acres and do not total.

2.02 IMPLEMENTATION OF THE APPROVED ACTIONS

- Salvage harvest of trees initially killed by the Rim Fire would be accomplished through timber sales that would occur over the next 2 seasons, culminating in winter 2015. Deterioration of the dead trees occurs quickly and by winter 2014 half of the value of most of the trees will be gone. Later, additional die back may be removed for up to the following 3 years.
- Roadside hazard tree removal may occur for at least the next 5 years where additional die back, a safety hazard for forest visitors, will be abated either through a commercial timber or fuelwood sales or force account (i.e., Forest Service fire crews falling and leaving trees).
- Biomass removal, tractor piling, and jackpot burning may also occur up to 5 years after the decision, but the goal to implement and accomplish all approved actions within the first 3 years.
- Watershed and Soil protection treatments must occur the same season as the timber harvest.
- The Annual Operating season for timber sales is May through mid-October; operations can occur on either side of those dates if weather and ground conditions allow as determined by Forest Service Soil Scientists and/or Hydrologists while meeting all approved management requirements (Appendix A).

3. Reasons for the Decision

3.01 OVERARCHING CONSIDERATIONS

In reaching my decision, I struggled with two important considerations. The first involves determining the right amount of active forest management within the Rim Fire area. On the one hand, I know that a significant amount of management is necessary to protect public safety, help restore the environment, and minimize the risk of another fire like the Rim Fire. On the other hand, I know that not every acre of ground burned by the Rim Fire requires, or would even benefit from, human intervention. The second consideration involves determining how much active management can actually be achieved in a cost-efficient manner. Given the rapid deterioration of fire-killed trees and the limited industrial capacity to harvest and process such trees, only a limited number of acres can be treated in the time before the burned trees lose all economic value.

I believe Modified Alternative 4 strikes a reasonable balance based on these considerations and will treat the land for safety and ecological purposes in the most critical areas, while simultaneously leaving the majority of the Rim Fire area to recover naturally. This decision is the result not only of the exhaustive analysis conducted in the EIS, but also the product of active public participation. Members of broad segments of the population commented on the proposed project and many encouraged the agency to take an active role in conducting salvage operations, removing hazard trees, reducing fuels, facilitating ecological recovery, and promoting research. However, representatives of both environmental groups and the timber industry informed me that the action alternatives in the EIS proposed more management than the environmental groups thought desirable and the timber industry thought practical. Therefore, I scaled back the scope of Alternative 4 to a size that would be practical to implement, while retaining the key treatments to attain the project's Purpose and Need.

Some members of the public may be concerned about the reduced treatment acres under Modified Alternative 4. However, I feel that it is pointless to include more salvage timber than can be accommodated by the local timber industry, which recently informed me that it does not have the mill capacity to handle all the timber volume included in Alternative 4 (or the other action alternatives). If I adopted Alternative 4 without any modifications, there would be a significant risk of losing potential contract bidders if the Forest Service required bidders to remove more timber than their capacity to harvest and process. Furthermore, despite the reduction in acres to be treated, Modified Alternative 4 focuses salvage timber harvesting in those areas where it will lead to the best realization of all the Rim Recovery project's objectives. Finally, Modified Alternative 4 retains the most important hazard tree removal, fuel reduction, road maintenance, wildlife habitat, and research components from Alternative 4.

Other members of the public may believe that Modified Alternative 4 still proposes too much timber harvest, and that the project should solely focus on ecological restoration. However, the six objectives of the Rim Recovery project are interconnected, and capturing the economic value of burned trees within the Rim Fire is *essential* to accomplishing the human safety, fuel reduction, ecological restoration, and research objectives of the Rim Recovery project. This is true not only in terms of generating funds to accomplish restoration goals, but also because timber sale contracts include many mandatory components such as restoration actions (e.g., road maintenance and fuel reduction). Therefore, above and beyond the socio-economic benefits it provides, timber harvest is necessary to advance non-economic aspects of this project.

Given the roles that salvage logging plays in this project, I want to stress the importance of quickly moving forward with project implementation. It is well known that burned timber loses its economic value rapidly. Even before a fire is completely extinguished, wood-boring insects, various fungi, and

the weather all begin to decay the wood of dead trees. The Rim Fire started just over one year ago, and reports from the field indicate that it is no longer economically feasible to cut and remove trees less than sixteen inches in diameter, due to the deterioration within such trees. With each passing month, that minimum salvageable diameter will increase, and more units of the Rim Recovery project will become economically infeasible to treat. At this point, only a few months are left in this year's operating season. Due to the current condition of the timber and the progressive deterioration process, beginning operations in the upcoming weeks is critical to ensuring the cost-effective implementation of this project. If project implementation is delayed, the timber sale contracts designed to implement this project may lose their economic viability and not receive any bidders. If that happens, this entire project, and all the public benefits it was designed to serve, may be lost.

3.02 ACHIEVEMENT OF THE PURPOSE AND NEED FOR ACTION

As previously discussed, my six main goals for this project include all 5 elements from the Purpose and Need (EIS Chapter 1.03) and one additional Research objective (EIS Chapter 2.01): 1) capture economic value through salvage logging; 2) provide for worker and public safety; 3) reduce fuels for future forest resiliency; 4) improve road infrastructure to enhance hydrologic function; 5) enhance wildlife habitat; and, 6) provide opportunities for scientific research. The following sections explain how Modified Alternative 4 meets each of these important objectives.

1. Capture Economic Value through Salvage Logging

The overall success of the Rim Recovery project depends on our ability to harvest some of the trees burned by the Rim Fire while they still have economic value. Modified Alternative 4 is designed to focus salvage logging on those areas that are the most cost-efficient to harvest, best advance the project's other purposes, and which can be completed by the end of the 2015 operating season, when the burned timber is expected to lose the majority of its economic value. In response to public input, Modified Alternative 4 avoids salvage harvest in certain areas of environmental concern, like the Clavey Proposed Wild and Scenic River, and eliminates some of the most cost-prohibitive harvest units.

My decision to exclude most of the proposed helicopter and skyline salvage harvest units from Alternative 4 was strongly informed by feedback I received from both the timber industry and environmental groups, neither of which supported harvest in such units. In the public interest of prompt implementation, it will be counterproductive to include numerous units in timber sales that will lessen their attractiveness to potential bidders. However, I retained some helicopter and skyline units, particularly along Pilot Ridge between the Merced River and Tuolumne River watersheds, whose location on the landscape makes their treatment essential to effectively reduce fuel loads in key areas. The retention of these few units is important to the fuel reduction purpose of the project and should not impact the economic viability of any timber sale contracts.

I am pleased that Modified Alternative 4 will capture the economic values provided by 15,383 acres of salvage logging, expected to produce about 210 million board feet of timber. Providing a sustainable supply of timber and supporting local economies are always important components of the Forest Service's multiple-use land mandate, and the Rim Fire already imposed considerable economic impacts on the tourism-dependent communities surrounding the Stanislaus National Forest.

In sum, I believe that Modified Alternative 4 provides an excellent means of capturing economic value through salvage logging in a cost-effective way, while simultaneously providing for other important project objectives.

2. Provide Worker and Public Safety

My highest priority and greatest concern is always the safety of the public, Forest Service employees and other forest workers. Therefore, removing hazard trees and providing for safe recreation and working conditions are essential components of Modified Alternative 4 and are unchanged from Alternative 4. In total, Modified Alternative 4 includes the removal of hazard trees from about 325 miles (17,335 acres) of roads outside of approved salvage units.

Photo 9: Burned snags are a hazard for anyone accessing the forest.

To anyone who believes that I misrepresented or over-stated the dangers posed by hazard trees in a forested landscape, I need only reference the recent tragic death of a visitor to Yellowstone National Park, who was killed by a falling tree burned in the 1988 Yellowstone Fire[5]. I will do everything possible to minimize this risk on the Stanislaus National Forest.

I also strongly disagree with those commenters who suggested closing the low standard roads proposed for treatment until all hazard trees fall on their own. Such suggestions completely ignore the variety of appropriate recreation activities (hunting, backcountry hiking and camping, mushroom gathering, bird watching, etc.) that would be constrained by a long-term closure of such roads.

Furthermore, a wide variety of agency management activities, firefighting not least among them, require Forest Service employees to use the Forest network of low standard roads, whether open to the public or not. Leaving hazard trees standing in such areas will either put agency employees in harm's way as they try to carry out their duties, or will impede their ability to effectively carry out their duties in order to remain safe. This is not a reasonable choice, since tens to hundreds of tons of fuel per acre would accumulate on the ground once these trees fall down. This complex of downed trees and the subsequent shrub growth will greatly increase the probability of another wildfire. Firefighter access will be difficult and in some cases impossible resulting in less direct attack options, possibly resulting in larger wildfires. More importantly, firefighter safety will be compromised by the hazards left in this untreated landscape. On the Tahoe National Forest, the 2013 American Fire burned over a portion of the 2008 Westville Fire; direct attack of the more recent fire was limited due to safety concerns about the hazards posed by falling snags left from the earlier fire resulting in containment lines constructed back from the actively-burning fire in places where it was safe to do so, ultimately increasing the fire footprint and suppression costs (USDA 2014f).

[5] Yellowstone Visitor Killed By Falling Tree online at: http://www.nps.gov/yell/parknews/14038.htm

For these reasons, my decision affirms and embraces all of hazard tree mitigation along low standard roads that is included in Alternative 4. This aggressive reduction of hazards was supported by comments on the DEIS, including those submitted by the Yosemite-Stanislaus Solutions group and several other independent environmental organizations.

Photo 10: High winds on August 22, 2013 snapped the tops off trees burned by the Rim Fire on August 21, 2013.

Unfortunately, with any significant delay in project implementation, we may not be able to fully achieve the goal of safe worker and public access, outlined above. The closure on public access that I imposed last year before the Rim Fire was extinguished had numerous consequences on the recreating public and the local economy. And yet, I stand firmly behind my responsibility to protect public safety and prevent any injuries or fatalities from a falling dead tree. Therefore, if, due to delay and timber deterioration, we are unable to remove hazard trees along public roads within the burned area, those roads will remain closed, perpetuating all the associated economic and recreational impacts while not entirely removing the risks of an employee or member of the public being struck by a tree.

3. Reduce Fuels for Future Forest Resiliency

After providing for human safety, my second highest priority is reducing fuels to avoid another extreme fire like Rim, which had so many adverse consequences (Long 2014). I acknowledge that much debate and uncertainty remains regarding the efficacy of salvage logging to reduce fire hazard. However, the Rim Fire Vegetation Resiliency Strategy, recent research discussed in the EIS, expert advice from scientists at the Pacific Southwest Research Station, and Forest Service experience with serious reburns all convinced me that the approved fuel reduction treatments will be effective. And, even though some uncertainty remains and more research is needed, the negative consequences of not taking action are too great to wait for absolute certainty. The Rim Fire showed us just how damaging an extreme fire can be, and I intend to do everything I can to reduce the chances of another such fire in this area.

The geographic scope of fuel reduction under Modified Alternative 4 is less than that of Alternative 4, since some of the salvage logging excluded from Modified Alternative 4 would have reduced fuel loading. However, Modified Alternative 4 retains all the most important fuel reduction actions proposed by Alternative 4, even in many units where salvage is excluded from Modified Alternative 4. For example, I retained most fuel reduction actions associated with the Strategically Placed Land Area Treatments (SPLATS) for Alternative 4, because attaining the project's overall fuel reduction objective relies on the integrity of the SPLAT system.

Some members of the public expressed concern about the effect of fuel reduction treatments on important ecosystem components, such as large downed logs and snags. However, I believe that Modified Alternative 4 and its associated management requirements (Appendix A) will provide sufficient quantities of large downed logs and snags to meet ecosystem needs while creating a fire-

resilient forest ecosystem. Indeed, even within treatment units, Modified Alternative 4 retains the largest pieces of large downed logs and snags, which are the most important for long-term ecosystem services. I am concerned that if we were to retain significantly more large downed logs and snags, our fuel reduction goals would be unduly compromised. Furthermore, because Modified Alternative 4 only treats a fraction of the area burned by the Rim Fire, there will be tens-of-thousands of acres with extremely high levels of large downed logs and snags, providing the benefits for those particular species that thrive in burned forests, such as the black-backed woodpecker.

Photo 11: This 2006 photo shows fuel loading from deteriorating snags burned 10 years earlier in the 1996 Charlton Fire on the Willamette National Forest in Oregon. (David Welton)

Ultimately, the goal for the Rim Fire area is not to eliminate fire from the ecosystem, since these forests evolved with fire as major influence. Rather, the goal is to modify fire behavior and lower severity, to bring these areas back to a more natural fire regime. After an extreme fire like the Rim Fire, the first step toward more natural conditions is to remove some of the accumulation of fuel, which is outside the ecologically appropriate range of variability for these ecosystems. Modified Alternative 4 takes this step by treating fuels in some of the most strategically important areas. These treatments will not only reduce the risk of another extreme fire like Rim, but they will also set the stage for reintroducing natural and prescribed fire into the ecosystem. My hope is that this project will be the first step in a many-decade process of helping restore a heterogeneous, fire-resilient forest that supports a broad array of wildlife, and where fire is an integral part of the system, not a landscape altering force.

4. Improve Road Infrastructure to Enhance Hydrologic Function

Since few NFS roads receive frequent or regular maintenance, it is likely that revenue from the sale of salvage timber is the only funding source for transportation improvements. Given the damage to the NFS roads system caused by the Rim Fire and the vulnerability of the system to serious erosion, such improvements and maintenance are essential to minimize potential damage to watersheds and water quality, while still providing public access.

Modified Alternative 4 will improve the Forest transportation system through road maintenance and improvement actions, such as culvert replacement, road surface replacement and regrading (as well as removing roadside hazard trees, discussed earlier). These treatments will provide long-term public and administrative access throughout the project area. In addition, the road treatments will enhance hydrologic function, leaving the system in a more stable and functional condition, minimizing adverse resource impacts in the future. If the project is not implemented, public and administrative access will be hampered, and the watercourses in the burned area will be at elevated risk from severe erosion and siltation, as winter storms impact the burned and fragile soils over the next several years.

Photo 12: Improper movement of water from the road system is one of the most potentially damaging factors for watershed and soils resources within the Rim Fire. Undersized culverts cannot handle post-fire flows with additional debris and sediments.

Photo 13: Due to debris and erosion following the Rim Fire, plugged culverts impact roads and watersheds from pooling, further erosion and sediment flows.

Some members of the public expressed concerns about the effects that roads themselves, no matter how well designed, have on soils and watersheds. Part of the reason I chose Modified Alternative 4 over the other action alternatives is precisely because no new roads will be built as part of my decision. However, I believe the existing road network needs to be repaired and maintained to minimize soil and watershed impacts, while keeping the Forest's current level of access for the public, management, and research. With approved management requirements, I believe that the long-term benefits of improving our road network far outweigh any of the short-term effects caused by approved road actions.

5. Enhance Wildlife Habitat

The conservation of wildlife is extremely important to me as it is to the members of the public that commented on the DEIS. Some of our commenters asserted that the Rim Recovery project is more concerned with money than ecological restoration and conservation of wildlife. I disagree, because I believe that multiple aspects of my decision speak to the importance I placed on minimizing short-term impacts to species that use burned forests, while providing for long-term benefits to a wide range of other species. Modified Alternative 4 includes protective measures beyond those required by the Forest Plan and agency policy for species listed as Threatened, Endangered and Sensitive, and also

takes into account the needs of non-listed species, such as the mule deer and black-backed woodpecker. Indeed, the Forest developed the original Alternative 4 to addresses the Snag Forest Habitat issue with additional black-backed woodpecker habitat retention.

While pondering how to craft a decision that would achieve all aspects of the Purpose and Need and simultaneously minimize impacts to wildlife, I was struck by the need to balance three trade-offs while considering a recent report from the California Department of Fish and Wildlife regarding wildlife impacts from the Rim Fire itself (CDFW 2014e):

- Lost one year of fawn recruitment (19 fawns/100 does survived) in the fire area; possible restoration includes biomass removal in strategic deer migration corridors and wintering areas.
- Long term loss of late seral stage habitat; dependent species will likely decline in the fire area.
- Low severity burned areas will likely see increased biodiversity due to the mosaic burn pattern.

The first trade-off is between short-term and long-term effects. In the short term, salvage logging and fuel reduction actions will undoubtedly affect individual animals and patches of habitat. However, in the long term, failing to reduce the extreme fuel load on the landscape increases the likelihood of having another extreme fire similar to the Rim Fire. The Rim Fire burned through forty six California spotted owl Protected Activity Centers (PACs) and twenty-two northern goshawk PACs, destroying some of these Sensitive species' important old-forest habitat. And, this is just a small snapshot of the wildlife impacts from the Rim Fire, a fire that burned 400 square miles, destroying the nests, dens, and habitat for scores of species, and surely causing the death of numerous individuals that were unable to escape the fire's destructive path. So, being faced with the choice of causing minimal short-term adverse effects to wildlife or increasing the risk of serious long-term impacts to wildlife, I opted for the former, with the strong conviction that doing so is better for wildlife[6]. That said, I am also concerned about short-term impacts to wildlife, and therefore designed Modified Alternative 4 to include extensive management requirements (Appendix A), which ensure that short-term impacts are minimized and the most important ecological legacies (such as large downed logs and snags) are retained in treated areas.

The second trade-off involves the conflicting habitat needs of old-forest specialists like the California spotted owl, northern goshawk, and fisher, and the habitat needs of burned-forest specialists like the black-backed woodpecker. The ideal situation is to maintain a balance of habitat for both types of species in a heterogeneous distribution across the landscape. However, in the aftermath of the Rim Fire, this balance tipped strongly toward more post-fire habitat being available than old-forest habitat. Several scientific studies documented that fire frequency, size, and severity are increasing in the Sierra Nevada, which makes it likely that burned-forest habitat will continue to increase in upcoming years (just as more old-forest habitat is lost to those fires). At a more local scale, this decision will **not** conduct habitat-disturbing actions in about 71 percent of the NFS lands within the Rim Fire (83 percent of the total Rim Fire), such that an abundance of burned-forest habitat will remain even with full implementation of Modified Alternative

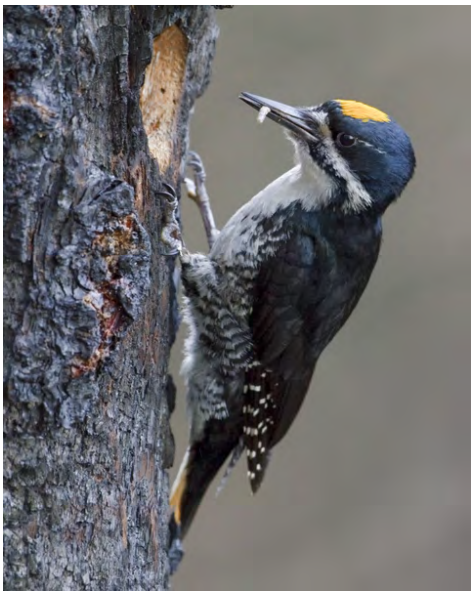


Photo 14: Modified Alternative 4 retains an abundance of burned-forest habitat for species like the black-backed woodpecker.

[6] As noted earlier, taking action is also essential for maintaining public safety and access, improving watershed conditions and other public benefits provided by this project.

4. Finally, the California spotted owl and fisher are both Sensitive species whose habitat is at increasing risk from severe fires. Indeed, the U.S. Fish and Wildlife Service determined that severe fire is the single largest threat to the continued existence of spotted owls. On the other hand, the International Union for Conservation of Nature designated the black-backed woodpecker as a species of "Least Concern" based on the species' extremely large range and apparently stable, large population[7]. Also, current data at the rangewide, California and Sierra Nevada scales indicate that the distribution of black-backed woodpecker populations in the Sierra Nevada are stable as described in the Wildlife Management Indicator Species (MIS) Report. For all of these reasons, my decision leans more toward actions intended to protect surviving old-forest habitat and ensure that new patches of such habitat develop in the future.

The third trade-off involves the conflicting needs of species that use burned-forests and needs of the Tuolumne and Yosemite mule deer herds. As described in the Wildlife Biological Evaluation (BE):

> The Rim Fire burned through critical deer winter range and deer migration access to winter foraging areas is essential for thriving herds. Both the Tuolumne and Yosemite herds declined in recent decades, and downed trees and the potential for more dead trees to fall will inhibit herd access to critical winter habitat and browse in the Rim Fire area. Therefore, removing some burned trees that might otherwise provide habitat for the black-backed woodpecker and other species is essential to providing for the health and recovery of these two deer herds.

Given the abundance of untreated burned forest and trend for more in the future, I approved the necessary actions for the benefit of the deer herds.

Photo 15: Downed trees and the potential for more dead trees to fall will inhibit deer herd access to critical winter habitat and food. Modified Alternative 4 includes a corridor linking wildlife populations to future habitat providing opportunities for these species to move north. (Tom Stienstra/San Francisco Chronicle July 10, 2014; Yosemite fire debate over harvesting burned trees online at: http://www.sfgate.com/science/article/Yosemite-fire-debate-over-harvesting-burned-trees-5094993.php)

Modified Alternative 4 excludes salvage harvest treatment in some of the units that overlap the deer

[7] Online at: http://www.iucnredlist.org/details/22681181/0

migration corridor, such as units O201A, O201B and P201 adjacent to Yosemite National Park; however, some of the dead material within these units will be removed through fuels reduction in order to promote deer passage through this important area from Yosemite National Park to critical deer winter range on the Stanislaus National Forest. Overall, I believe that the deer habitat improvements included in Modified Alternative 4 are essential and outweigh any adverse impacts to burned-forest habitat in those areas.

Toward the goal of conserving old-forest habitat and species, Modified Alternative 4 includes a management requirement rather than a Forest Plan Amendment to provide for a forest carnivore connectivity corridor to Yosemite National Park. I received some strong feedback suggesting an alternate location for the corridor, where the action alternatives (EIS Chapter 2.02) did not propose treatments or where my decision excludes some actions. Although I decided this corridor should be determined through a Forest Plan revision, my decision meets the objective of managing some units for forest carnivore connectivity while not precluding future options for carnivore corridor locations.

Like Alternative 4, Modified Alternative 4 includes management requirements which will benefit wildlife in general, but specifically tailored to benefit California spotted owls, great gray owls and northern goshawks:

- Snags, large downed logs, and un-merchantable material will be retained in harvest units to provide habitat elements important for these sensitive species and their prey species. All action alternatives would retain 10-20 tons of dead wood per acre, but Modified Alternative 4 emphasizes retention at the higher end of that range. Modified Alternative 4 also excludes treatments from 2,571 acres of high value black-backed woodpecker habitat (Tingley 2014) leaving untreated large downed logs and snags for other species. As discussed above, the retention of dead wood versus its removal is a trade-off between the immediate habitat needs of some species and an increasing fuel load that could lead to another extreme fire destroying even more habitat. I believe Modified Alternative 4 strikes the best balance.
- Modified Alternative 4 requires the Forest Service to flag and avoid current and historic nest trees for these three species, which should protect nest trees and ensure compliance with the Migratory Bird Treaty Act.

Given the concern expressed in several public comments about the management of California spotted owl and northern goshawk PACs, I would like to briefly address these species here:

- **California Spotted Owl PACs**: The DEIS documented an initial plan to: a) remove ten spotted owl PACs from the PAC network due to the extent of high severity fire and resulting habitat loss within those PACs; and, b) to change the boundaries of nine other PACs, where suitable habitat remained after the fire adjacent to the former PAC. Spotted owl occupancy surveys conducted since the release of the DEIS confirmed that spotted owls are still present in relatively unburned forest adjacent to six of the removed PACs. Therefore, the Forest established six new spotted owl PACs within the perimeter of the Rim Fire, none of which overlap to any meaningful degree with treatment units included in Modified Alternative 4.
- **Northern Goshawk PACs**: The DEIS documented an initial plan to: a) remove four northern goshawk PACs from the PAC network due to the extent of high severity fire and resulting habitat loss within those PACs; and, b) to change the boundaries of three other PACs, where suitable habitat remained after the fire adjacent to the former PAC. Northern goshawk occupancy surveys conducted since the release of the DEIS confirmed that goshawks are still present in relatively unburned forest adjacent to two of the removed PACs. Therefore, the Forest established two new goshawk PACs within the perimeter of the Rim Fire, none of which overlap to any meaningful degree with treatment units included in Modified Alternative 4.

While I do not believe that implementation of the Rim Recovery project poses any threat to the black-backed woodpecker as a species, I heard the numerous concerns raised by some commenters about

the threats they perceive. I am not convinced about the need to add black-backed woodpeckers to the list of species for which require a Limited Operating Period.

In sum, I believe that Modified Alternative 4 strikes a careful and reasonable balance between the short-term impacts of management on some species and the long-term conservation of other species. Given that the needs of various species differ, and often conflict, there is no solution that will maximize benefits for all species, in all locations, and at all times. Modified Alternative 4 is the best solution I could find, particularly given the other important aspects of the project's Purpose and Need.

6. Provide Opportunities for Scientific Research

I'm saddened that the Rim Fire occurred; however, I'm genuinely thrilled that the Rim Recovery project provides opportunities for research scientists to undertake an integrated package of 7 studies and activities to investigate key questions related to fire management and landscape restoration after an extreme fire (EIS Appendix D). The Pacific Southwest Research Station is responsible for conducting the following research projects; Modified Alternative 4 only implements the specific treatments that will serve as data sources for scientific research.

1. Addressing Levels of Post-Fire Snag Removal on Black-Backed Woodpecker Nesting and Foraging Behavior.
2. Ecological Restoration Following the Rim Fire - Potential Learning Opportunities Regarding Replanting.
3. Effects of Postfire Salvage Logging and Mitigation Measures on Soils, Vegetation, and Erosion
4. Effect of Varying Levels of Salvage on Snag Retention Rates, Rates at Which Snags Become Fuels, Rates of Natural Tree Regeneration and Understory Development, and Effects on Non-Native Species Abundance over Time.
5. Landscape Fuel Treatment Effectiveness in the 2013 Rim Fire: A Spatially Explicit Assessment of Treatment Impacts on Fire Severity Patterns.
6. Effects of Salvage Logging, Resulting Snag Density and Distribution, and Green Tree Proximity on Wildlife Habitat and Use, Forest Recovery, and Forest Ecosystem Function.
7. Assessing the Response of California Spotted Owls to Wildfire and Salvage Logging on the Rim Fire.

3.03 MANAGEMENT REQUIREMENTS

Appendix A lists the approved Management Requirements guiding the implementation of Modified Alternative 4. Those requirements are designed to ensure compliance with the Forest Plan and to minimize or avoid adverse impacts.

4. Other Alternatives Considered

The following sections present the other alternatives considered in detail but not selected; the alternatives considered but eliminated from detailed study; and, the environmentally preferred alternative.

4.01 ALTERNATIVES CONSIDERED IN DETAIL BUT NOT SELECTED

EIS Chapter 2.02 describes and compares the alternatives considered in detail for the Rim Recovery project. It presents the alternatives in comparative form, defining the differences between each alternative and providing a clear basis for choice among the options for the Responsible Official and the public. These include the Proposed Action (Alternative 1), the no action alternative (Alternative

2), and two additional action alternatives (3 and 4) that provide a comprehensive range for the decision maker. EIS Table 2.05-1 provides a summary of the proposed activities and EIS Appendix E provides detailed information for each specific treatment unit.

The following information briefly describes the alternatives considered in detail along with my reasons for not selecting them.

Alternative 1 (Proposed Action)

This is the Proposed Action, as described in the Notice of Intent (78 Federal Register 235, December 6, 2013; p. 73498-73499), with corrections based on updated data and map information and completion of PAC re-maps as stated in the scoping package (Chapter 1.04). These corrections and refinements provide additional resource protection and a more accurate and informed proposed action. I did not select Alternative 1 (Proposed Action) because:

- Recent information indicates that local mill capacity cannot accommodate the timber volume that would be produced by this alternative.
- It includes new permanent road construction which was an important concern expressed by many commenters.
- It does not provide watershed treatments for additional protection of sensitive soils.
- It does not provide the same increased opportunity for snag and down material retention as Modified Alternative 4.
- It does not provide opportunities for research scientists to investigate key questions related to fire management and landscape restoration after an extreme fire.

Alternative 2 (No Action)

Alternative 2 (No Action) serves as a baseline for comparison purposes (73 Federal Register 143, July 24, 2008; p. 43084-43099). Under Alternative 2 (No Action), no proposed activities would occur. I did not select Alternative 2 (No Action) because:

- Without salvage, no economic value would be recovered from this viable source. As a perishable commodity, harvest must occur in a timely manner in order for the value of the dead trees to pay for their removal as well as potentially future restoration treatments.
- Without salvage, dead trees would not be removed from this area leaving tens to hundreds of tons of fuel per acre once these trees fall down. This heavy fuel loading and the subsequent shrub growth will greatly increase the probability of another extreme wildfire. Firefighter access will be difficult and in some cases impossible resulting in less direct attack options and wider containment lines resulting in a larger wildfire with higher suppression costs.
- Leaving standing hazard trees in these areas will put agency employees in harm's way or impede their ability to carry out their field duties. Firefighter safety will also be compromised in these areas with limited access given the presence of so many snags. The visiting public would also be at risk as the presence of hazard trees deters from a safe recreation experience.
- The maintenance and reconstruction of roads would not be implemented to accomplish the project goal of a properly functioning road infrastructure.
- Long-term impacts to critical wildlife habitat would not be addressed, in particular for the California spotted owl, great gray owl, northern goshawks, and mule deer herds in need of winter range land for foraging.
- It does not provide opportunities for research scientists to investigate key questions related to fire management and landscape restoration after an extreme fire.

Alternative 3

Alternative 3 responds to issues and concerns related to: Snag Forest Habitat; New Road Construction, Wildlife Habitat; and, Soil and Watershed Impacts (EIS Chapter 1.08). Compared to

Alternative 1, it addresses those issues by proposing: additional wildlife habitat enhancement (including biomass removal in Critical Deer Winter Range and the FCCC Forest Plan Amendment); additional soil and watershed protection (mastication and drop and lop); and, less new construction. It also includes research to help answer wildlife, fuels, watershed, and soils questions. I did not select Alternative 3 because:

- Recent information indicates that local mill capacity cannot accommodate the timber volume that would be produced by this alternative.
- It includes new permanent road construction which was an important concern expressed by many commenters.
- It does not include the additional acreage set aside for post-fire dependent species such as the black-backed woodpecker included in Modified Alternative 4. It is obvious from public comments that the provision of habitat for post-fire species is of great concern to many.
- Modified Alternative 4 better focuses salvage logging on those areas that are the most cost-efficient to harvest, best advance the project's other purposes, and which can be completed by the end of the 2015 operating season, when the burned timber is expected to lose the majority of its economic value.
- Modified Alternative 4 excludes most of the proposed helicopter and skyline timber harvest units from Alternative 3 which was strongly informed by feedback I received from both the timber industry and environmental groups, neither of which supported harvest in such units.
- Modified Alternative 4 includes management requirements rather than a Forest Plan Amendment to provide for a carnivore connectivity corridor to Yosemite National Park. I decided this issue should be determined through the full collaborative process of a Forest Plan revision.

Alternative 4

Alternative 4 responds to issues and concerns related to: Snag Forest Habitat; New Road Construction, Wildlife Habitat; and, Soil and Watershed Impacts (EIS Chapter 1.08). Alternative 4 replaces new construction with temporary roads and drops 2,500 acres of salvage logging in highly suitable black-backed woodpecker habitat. I did not select Alternative 4 because:

- Recent information indicates that local mill capacity cannot accommodate the timber volume that would be produced by this alternative.
- It does not include the additional acreage set aside for post-fire dependent species such as the black-backed woodpecker included in Modified Alternative 4. It is obvious from public comments that the provision of habitat for post-fire species is of great concern to many.
- Modified Alternative 4 better focuses salvage logging on those areas that are the most cost-efficient to harvest, best advance the project's other purposes, and which can be completed by the end of the 2015 operating season, when the burned timber is expected to lose the majority of its economic value.
- Modified Alternative 4 excludes most of the proposed helicopter and skyline timber harvest units from Alternative 4 which was strongly informed by feedback I received from both the timber industry and environmental groups, neither of which supported harvest in such units.
- Modified Alternative 4 includes management requirements rather than a Forest Plan Amendment to provide for a carnivore connectivity corridor to Yosemite National Park. I decided this issue should be determined through the full collaborative process of a Forest Plan revision.

4.02 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY

NEPA requires that federal agencies rigorously explore and objectively evaluate all reasonable alternatives and briefly discuss the reasons for eliminating any alternatives that were not developed in

detail (40 CFR 1502.14). Public comments and internal scoping suggested the alternatives briefly described below along with a brief response discussing the reasons for eliminating them from detailed study. EIS Chapter 2.04 provides a detailed description these alternatives considered but eliminated from detailed study along with the reasons why each was eliminated.

a. Remove the Maximum Amount of Timber Value

This alternative, based on scoping comments would salvage every area within NFS lands containing 5,000 BF or more per acre. It would eliminate more expensive logging systems like helicopter and skyline to maximize returns. It would minimize the number and size of snags retained within treatment units and across the landscape, and drop biomass removal within each sale to reduce costs. Although it meets portions of the purpose and need; capture economic value, promote public and worker safety and improve road infrastructure to enhance hydrologic function, it was considered but eliminated from detailed study for the following reasons:

- Recent information indicates that local mill capacity cannot accommodate the timber volume that would be produced by this alternative.
- It does not meet the purpose and need of reducing fuels for future forest resiliency. Although most of the larger trees would be removed providing an initial fuel treatment, over 30,000 acres of needed fuel treatments would not occur with this alternative.
- It does not meet the purpose and need of wildlife habitat enhancement. Dead trees and smaller biomass material within Critical Deer Winter Range would remain on site since the amount of merchantable material is minimal with most of the area having less than 5,000 BF of timber per acre making it uneconomical to treat. No additional snags would be left for various wildlife species and those retained on site would be smaller in diameter.
- It is not consistent with agency policy and Forest Plan Direction, which require special considerations in Roadless and other land management areas.
- It does not provide opportunities for research scientists to investigate key questions related to fire management and landscape restoration after an extreme fire.

b. Hazard Tree Removal Only

This alternative, based on scoping comments, would only cut and remove dead trees adjacent to low standard NFS roads; all other dead trees would remain. It was considered but eliminated from detailed study for the following reasons:

- It does not meet the purpose and need to capture the economic value since many large burned dead trees in dense stands would be left within the burn.
- It does not fully meet the purpose and need to provide for worker and public safety. If not removed by salvage treatments, tens to hundreds of tons of fuel per acre would accumulate on the ground. The complex of downed trees and subsequent shrub growth will greatly increase the probability of another extreme wildfire. Firefighter access will be difficult and in some cases impossible, resulting in less direct attack options and wider containment lines resulting in a larger wildfire. More importantly, firefighter safety will be compromised by the hazards left in this untreated landscape.
- It does not meet the purpose and need to reduce fuels for future forest resiliency. If only roadside hazard trees are removed, over 30,000 acres of needed fuel treatments would not occur with this alternative. No biomass would be treated and only minimal fuels reduction would occur across this large landscape, making future fires difficult to manage and contain.
- The maintenance and reconstruction of roads would not be implemented to accomplish the project goal of a properly functioning road infrastructure.
- It does not meet the purpose and need of wildlife habitat enhancement. Under this alternative, long-term impacts to critical wildlife habitat would not be addressed, in particular for the

California spotted owl, great gray owl, northern goshawks, and mule deer herds in need of winter range land for foraging.
- It does not provide opportunities for research scientists to investigate key questions related to fire management and landscape restoration after an extreme fire.

c. Retain 100 Percent Black-Backed Woodpecker Modeled Pairs

This alternative, based on scoping comments raised during collaborative meetings, would retain 100 percent of black-backed woodpecker pairs on the Stanislaus National Forest as modeled by Tingley et al. 2014. This alternative would need to retain about 21,000 more acres than Alternative 4. Compared to Alternative 4, this alternative would reduce salvage treatments to 7,500 acres and hazard tree removal to 14,500 acres. It was considered but eliminated from detailed study for the following reasons:

- It does not meet the purpose and need to provide for worker and public safety. Roadside hazard trees would be left standing making roads unsafe for the public and field workers. This is estimated to be over 85 miles of Level 2 roads. In addition, because hazard trees could be removed from only some road segments, certain roads may remain closed to public access because the risk of hazard tree failure threatens public and worker safety.
- It does not fully meet the purpose and need for reducing fuels for future forest resiliency. If not removed by salvage treatments, tens to hundreds of tons of fuel per acre would accumulate on the ground, increasing the probability of another large wildfire. Firefighter access would be difficult in future fires and their safety compromised by the hazards left in this untreated landscape.
- The maintenance and reconstruction of roads would not be implemented to accomplish the project goal of a properly functioning road infrastructure.
- It may not fully provide opportunities for research scientists to investigate key questions related to fire management and landscape restoration after an extreme fire.

d. Retain the Best 75 Percent of the Black-Backed Woodpecker Modeled Pairs

This alternative, based on scoping comments raised during collaborative meetings, would retain 75 percent of the best habitat for black-backed woodpecker pairs on the Stanislaus National Forest as modeled by Tingley et al. 2014. This alternative would need to retain (not treat) about 14,000 additional acres than Alternative 4, reducing proposed salvage treatments by half. It was considered but eliminated from detailed study for the following reasons:

- It does not meet the purpose and need to provide for worker and public safety. Roadside hazard trees on 65 miles of Level 2 roads in the best habitat would be left standing making roads unsafe for the public, field workers, and firefighters.
- It does not fully meet the purpose and need of reducing fuels for future forest resiliency. Some of the best Black-Backed Woodpecker habitat is located in areas that were identified as strategic fuel treatment areas to prevent a large complex of downed wood accumulation.
- It would not meet the purpose and need of improving the hydrologic function of the road system. Because timber sales are used to fund road treatments, some road reconstruction and maintenance would not occur under this alternative.
- It may not fully provide opportunities for research scientists to investigate key questions related to fire management and landscape restoration after an extreme fire.

e. Retain Pre-Fire Spotted Owl PAC Boundaries, No PAC Remapping or Retiring

This alternative, based on scoping comments, would retain the 46 spotted owl PACs burned within the Rim Fire in their original location. PACs are remapped following fire to encompass the best available habitat, generally the areas with the most remaining large live trees. No remapping of boundaries into adjacent green habitat would occur and none that were completely consumed

by the fire would be retired. These would be kept as suitable habitat for the owls. It was considered but eliminated from detailed study for the following reasons:

- It is not consistent with Forest Plan Direction, which requires that habitat conditions be evaluated after a stand-replacing event and opportunities for remapping of PACs be identified. PACs are delineated to encompass the best available 300 acres of habitat.
- It does not fully meet the purpose and need to provide worker and public safety since hazard trees would not be removed in retained PACs.
- It does not fully meet the purpose and need of reducing fuels for future forest resiliency. In retained PACs, hazard trees would be felled and left in place and strategic fuel treatments would not occur. The large amount of fuel in these areas would make future fires difficult to manage and contain, jeopardizing future fire resiliency.
- It may not fully provide opportunities for research scientists to investigate key questions related to fire management and landscape restoration after an extreme fire.

f. Natural Succession

This alternative, based on scoping comments, would allow the forest to recover naturally. This differs from "No Action" by including measures to reduce erosion and sedimentation, decommissioning roads, and curtailing cattle grazing in recovering areas. Salvage logging would be reduced or eliminated in sensitive areas. Impacted fisheries would recruit new populations from endemic stock migration rather than hatchery augmentation. It was considered but eliminated from detailed study for the following reasons:

- Road decommissioning, cattle grazing, and fisheries recruitment are outside the scope of this project.
- It does not meet the purpose and need to capture the economic value since many large burned dead trees in dense stands would be left within the burn.
- It does not meet the purpose and need of reducing fuels for future forest resiliency. No biomass would be treated and over 30,000 acres of needed fuel treatments would not occur with this alternative. The large amount of fuel in these areas would make future fires difficult to manage and contain, jeopardizing future fire resiliency.
- It does not provide opportunities for research scientists to investigate key questions related to fire management and landscape restoration after an extreme fire.

g. Central Sierra Environmental Resource Center

This alternative, based on DEIS comments, is similar to Alternative 4 but would incorporate selected aspects of Alternative 2 (No Action). This Alternative would increase snag retention levels in General Forest units, remove selected skyline and helicopter units, and remove units bordering private lands west of Cherry Lake while emphasizing treatments near residential areas or family camps. It was considered but eliminated from detailed study for the following reason:

- It is similar to an alternative already considered in detail (Alternative 4) with effects within the range of the alternatives already considered in detail.

h. Sierra Forest Legacy

This alternative, based on DEIS comments, would reduce the area affected by salvage logging in order to minimize watershed impacts, eliminate skyline and cable logging in order to avoid high fuel loading in these units, retain old forest structure in old forest emphasis areas, implement landscape goals and landscape themes, and considers bioclimatic envelope mapping. This suggested alternative drops units from Alternative 4 in order to improve conservation of sensitive resources. It was considered but eliminated from detailed study for the following reason:

- It is similar to an alternative already considered in detail (Alternative 4) with effects within the range of the alternatives already considered in detail.

4.03 ENVIRONMENTALLY PREFERRED ALTERNATIVE

The environmentally preferable alternative is often interpreted as the alternative that causes the least damage to the biological and physical environment, or the alternative which best protects and preserves historic, cultural and natural resources. But, other factors relevant to this determination are provided in Section 101 of NEPA (42 USC 4321) which states that it is the continuing responsibility of the Federal Government to:

- Fulfill the responsibilities of each generation as a trustee of the environment for succeeding generations;
- Assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings;
- Attain the widest range of beneficial uses of the environment without degradations, risk to health of safety, or other undesirable and unintended consequences;
- Preserve important historic, cultural and natural aspects of our national heritage and maintain, wherever possible, an environment which supports diversity and variety of individual choice;
- Achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and,
- Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

Based on my consideration of the factors listed above and the effects disclosed in the EIS, I believe that Modified Alternative 4 is the Environmentally Preferred Alternative for the following reasons:

- Modified Alternative 4 best provides for the long term management of the project area.
- Modified Alternative 4 provides an excellent means of capturing economic value through salvage logging in a cost-effective way, while simultaneously providing for other important project objectives. The actions implemented by this decision will generate revenues through the sale of salvage timber to offset the need for public expenditures through Congressional appropriation to create a safe environment for current and future public use.
- Modified Alternative 4 removes hazard trees to provide for public safety and Forest Service employee safety which includes firefighters accessing the area in possible future fires.
- The fuel reduction through salvage harvest, biomass removal and other fuel reduction actions will provide for the creation of a resilient forest as well as enhance habitat for migratory deer.
- Modified Alternative 4 will improve the Forest transportation system through road maintenance and improvements. No new permanent roads will be built as part of this decision, but the existing road network will be repaired to keep the current level of public and administrative access.
- Modified Alternative 4 includes additional protective measures beyond the minimum required by the Forest Plan and agency policy for species listed as Threatened, Endangered, and Sensitive while also taking into account the needs of non-listed species. This alternative is designed to strike a reasonable balance between minimizing short-term impacts on some species and long-term conservation of other species, specifically California spotted owls, great gray owls, and northern goshawks.
- Modified Alternative 4 provides opportunities for research scientists to investigate key questions related to fire management and landscape restoration after an extreme fire.
- Modified Alternative 4 will **not** conduct habitat-disturbing actions in about 71 percent of the NFS lands within the Rim Fire (83 percent of the total Rim Fire). The treatments approved on the NFS lands can meet multiple objectives including protecting habitat for post-fire species and allowing natural processes to occur.

5. Public Involvement

Due to the enormity of the Rim Fire, the tremendous public interest in management of the burned area, and the urgent need to begin project implementation, the Forest Service made unprecedented efforts to seek early and broad public involvement for this project. This public outreach began while the fire was still smoldering and continued up until the point of this decision. I sought input from individuals, non-profit groups, industry representatives, local governments, public agencies and Native American tribes. As a result, interested parties submitted a staggering amount of comments – in person, on the phone, in public meetings, and in thousands of letters and e-mails. This public input not only informed me of people's opinions, but also contributed a breadth of experience and knowledge to the project design process. Ultimately, Modified Alternative 4 is the direct result of the robust public process that progressed over the last year.

Of particular value during the public involvement process several collaborative groups representing a wide range of values and opinions provided constructive, consensus input. One group, Yosemite Stanislaus Solutions (YSS), includes a wide variety of local stakeholders including timber industry, environmental groups, government agencies and others. YSS fosters partnerships among private, nonprofit, state, and federal entities with a common interest in the health and well-being of the landscape and communities in the Tuolumne River Watershed. The group fosters an all-lands strategy to create a heightened degree of environmental stewardship, local jobs, greater local economic stability, and healthy forests and communities.

Another group, the Rim Fire Technical Workshop group, consists of scientists and representatives from state and national environmental organizations, the timber industry, and government entities with a more national or statewide interest-base. This group was organized through the efforts of the Sierra Nevada Conservancy, a State of California agency, the mission of which is to initiate, encourage, and support efforts that improve the environmental, economic and social well-being of the Sierra Nevada Region, its communities, and the citizens of California.

The Forest Service met with both YSS and the Rim Fire Technical Workshop group on several occasions during the past year, including field trips into the burn area and all day workshops. These meetings were essential in helping the Forest Service understand the views of important segments of the public, while simultaneously engaging in productive discussions to seek solutions that would strike the right balance between the broad range of values that were represented. These meetings and discussions directly contributed to the scope and content of the DEIS.

However, as a review of the public comment on the DEIS makes clear, there was no single, consensus recommendation on how to best manage the land impacted by the Rim Fire. Nonetheless, after the close of the comment period on the DEIS and while the agency was in the final stages of preparing the EIS, the Sierra Nevada Conservancy again convened representatives from conservation organizations and the timber industry in hopes of finding common ground. This new group requested a meeting to present a consensus proposal based on their previously submitted comments on the DEIS. As with any member of the public who wishes to meet with me and express their viewpoints, I listened to their proposal. It was similar in many ways to Alternative 4, but reduced the scope and footprint of Alternative 4 by: 1) eliminating all of the helicopter salvage units and most of the skyline salvage units (for environmental and economic reasons); 2) focusing salvage treatments within a smaller area and eliminating treatment units from the upper Clavey River watershed; and, 3) reducing timber volume to a level commensurate with the industry's harvesting, hauling and milling capacity.

While the group proposed treating less of the area burned by the Rim Fire than I originally contemplated, their input helped shape my decision for two reasons. First, their proposal was a consensus recommendation from important interest groups that often have divergent views on land

management. Many of the key points of disagreement that were evident in the comments on the DEIS were held by members of the timber industry and environmental groups. Therefore, I thought a proposal from this group warranted serious consideration and might reflect as good a balance as I could hope for to address my, and the public's, goals for this project. Second, the representatives from the timber industry informed me that it was simply not feasible to treat the amount of acreage in Alternatives 1, 3 and 4, due to their most recent analyses of the local industry's limited capacity and the progressive deterioration of the burned timber.

Ultimately, I incorporated the majority of the group's input in fashioning Modified Alternative 4. I did not incorporate all of their recommendations, since doing so would compromise some important fuel reduction and wildlife habitat enhancement actions that were part of Alternative 4. In the end, I believe that Modified Alternative 4 strikes a reasonable balance that will achieve project objectives and will be feasible to implement. And, it was only through the active and creative public input that I could reach this point.

The key stages of public input through which this project progressed are described below; each of which provided essential input for my decision-making process. The Scoping Summary (project record) identifies specific details for 4 open houses, 21 meetings, 6 field trips, 2 webinars, 2 workshops and other public involvement activities the Forest conducted since initial development of the Rim Recovery project.

5.01 INITIAL PUBLIC SCOPING ON THE PROPOSED ACTION

The Forest held its first field trip into the Rim Fire on October 16, 2013 with individuals from the Tuolumne Band of Me-Wuk Indians, Central Sierra Environmental Resource Center (CSERC), Sierra Club, Tuolumne County Alliance for Resources and Environment (TuCARE), California Fish and Wildlife Service, Audubon Society, Tuolumne County Supervisors, logging companies, sawmills, Sierra Nevada Conservancy and the local collaborative group YSS. On November 14, 2013 the Rim Fire Technical Workshop group toured the burn area with several stops and discussions with Forest Service managers and researchers.

Soon thereafter, the Forest Service began its scoping process, according to the Council on Environmental Quality (CEQ) regulations (40 CFR 1501.7). In addition to other public involvement, scoping initiates an early and open process for determining the scope of issues to be addressed in the EIS and for identifying the significant issues related to a proposed action. This scoping process allows the Forest Service not only to identify significant environmental issues deserving of study, but also to deemphasize insignificant issues, narrowing the scope of the EIS process accordingly (40 CFR 1500.4(g)).

The Forest Service first listed the Rim Recovery project online in the Stanislaus National Forest Schedule of Proposed Actions (SOPA) on December 5, 2013. That same day, the Forest Supervisor sent a scoping letter and package to 131 individuals, permittees, organizations, agencies, and Tribes. The letter requested specific written comments on the Proposed Action during the initial 30-day opportunity for public participation.

On December 6, 2013, The Forest Service published a Notice of Intent (NOI) that asked for public comment on the proposal (78 Federal Register 235, December 6, 2013; p. 73498-73499). Interested parties submitted 4,200 letters during the comment period, including 174 unique letters and 4,026 form letters. Other interested parties submitted 3,627 form letters after the comment period closed.

During the 30-day scoping comment period the Forest Service held public open houses at the Forest Supervisor's Office on December 13 and 14, 2013. The open houses were advertised on local radio stations, in the local newspaper, on the Stanislaus National Forest website, through a "tweet" to more

than 68,000 followers, through direct mailings to those on the SOPA mailing list, and to those who showed interest in the project. Over 25 people attended the open houses, where the Forest described the preliminary purpose and need for the project as well as proposed recovery treatments. ID Team members participated and answered questions regarding the project and proposed action. The Forest hosted a Rim Fire Technical Workshop to share scoping information on December 18, 2013.

Significant Issues

Based on public comments, the Forest developed significant issues to formulate and compare alternatives, prescribe mitigation measures, or analyze and compare the environmental effects of each alternative. The EIS (Chapter 1.08) fully describes the process used to identify these 6 significant issues: 1) Health and Safety; 2) Snag Forest Habitat; 3) New Road Construction; 4) Wildlife Habitat; 5) Salvage Logging; and, 6) Soil and Watershed Impacts.

5.02 CONTINUED SCOPING AFTER THE COMMENT PERIOD

After the initial 30-day scoping period, the Forest continued scoping with interested parties. The Forest hosted another Rim Fire Technical Workshop to share the development of alternatives status on January 31, 2014. The Forest described the alternatives developed since the initial scoping at a public open house on February 13, 2014 attended by over 50 people. The Forest organized field trips with the Tuolumne Band of Me-Wuks on March 13, 2014 and March 17, 2014 followed by a Tribal consultation day on May 9, 2014.

The Forest organized 24 tours into the Rim Fire area for congressional aides, local government, and other interested parties. The Forest also provided monthly updates to the Tuolumne Board of Supervisor's Natural Resources Committee. Forest Service representatives also spoke with many local and statewide businesses, interest groups and service clubs including Hetch Hetchy, TuCARE, Blue Ribbon Coalition, American Forest Resource Council, Range Permittees, Rotary Clubs, Stanislaus Wilderness Volunteers, Sierra Forest Legacy, timber operators and the Lions Club.

5.03 DEIS COMMENT PERIOD

The initial Notice of Availability (NOA) for the DEIS appeared in the Federal Register on May 16, 2014 (79 Federal Register 95, May 16, 2014; p. 28508), followed by an amended notice on May 23 (79 Federal Register 100, May 23, 2014; p. 29759-29760).The Forest Supervisor sent a DEIS notification letter to the 174 interested parties who submitted unique comments during scoping along with other individuals, permittees, organizations, agencies, and Tribes interested in this project on May 16, 2014, requesting specific written comments by the filing deadline of June 16, 2014. The Forest Service also published the DEIS on the internet [http://www.fs.fed.us/nepa/nepa_project_exp.php?project=43033].

During this period, the Forest produced materials for social media outlets, including tweets, web features and photo pages; and, distributed some 60,000 newspaper inserts throughout the region explaining many of the proposed activities. The Forest hosted a public open house on May 22, 2014; and, a webinars on May 30, 2014 and June 25, 2014 for a variety of interested stakeholders including Tuolumne River Trust, Berkeley Camp, and industry representatives. The Forest organized 3 field trips with the Tuolumne Band of Me-Wuks on June 11, June 18 and June 25, 2014. The Forest hosted a field trip into the Rim Fire area on June 16, 2014 with over 40 attendees including a CEQ official and representatives from various environmental organizations, industry and local government.

Interested parties submitted 5,589 total comment letters on the DEIS including 154 unique individual letters and 5,435 form letters from 8 different organized groups. The Response to Comments (EIS

Appendix F) identifies specific comments submitted during the comment period and the Forest Service responses.

While making this decision, I also considered recent information including late comments submitted after the comment period. For example, on August 21, 2014 (over two months after the close of the comment period) the Wild Nature Institute along with the John Muir Project of Earth Island Institute and the Center for Biological Diversity submitted comments related to potential effects on the California Spotted Owl. Given the lateness of that letter and our accelerated timeline, authorized by the President's Council on Environmental Quality (CEQ), the EIS Response to Comments does not specifically respond to that letter; however, I considered the information in that letter as follows: 1) the recent spotted owl survey data cited in the comment letter is information generated by the Forest Service, incorporated in the EIS, and shaped the final decision; therefore, the Forest Service considered this "new information"; 2) a great deal of the August 21, 2014 comment letter contains assertions related to information available at the time of the publication of the DEIS; therefore, any comments related to such information should have been included in comments on the DEIS; 3) the comment letter relies upon an extensive analysis of site occupancy was not subject to peer review; 4) the new owl survey data do not substantially change the scope of the action or the environmental consequences of the alternatives; therefore, a supplemental DEIS is not necessary pursuant to 40 C.F.R. §1502.9; and, 5) both the EIS and this decision recognize that owls forage in burned forests, and the EIS analyzes the effects of the various alternatives based on this understanding; therefore, the underlying point raised in the August 21, 2014 comment letter, that implementing the Rim Recovery Project may adversely affect spotted owls in the area, was already addressed in the EIS and factored into this decision.

5.04 EIS AND PROPOSED RECORD OF DECISION

In order to facilitate implementation of this project, the CEQ granted alternative arrangements in accordance with 40 CFR 1506.11 on December 9, 2013. With these alternative arrangements for the Rim Recovery project, CEQ specifically approved the following:

- Shortened the public comment period for the draft EIS from 45 to 30 days.
- Eliminated the minimum 90-day requirement between the Notice of Availability of the draft EIS and the publication of the Record of Decision (ROD).
- Eliminated the 30-day waiting period between the publication of the final EIS and the ROD.

CEQ also included the following requirements for the Forest:

- Continue to enhance public and stakeholder engagement during the scoping initiated by the December 6, 2013 Notice of Intent to prepare the EIS.
- Continue active engagement of interested parties throughout the preparation of the EIS.
- Continue communication with the Yosemite Stanislaus Solutions collaborative group.
- Attend and continue communication with the Sierra Nevada Conservancy and parties participating in the Rim Fire Landscape Restoration Technical Workshop on December 18, 2013.
- Post the Final EIS and proposed ROD on the Forest Service website for public review 5 to 10 business days prior to publishing the official Notice of Availability in the Federal Register.

I believe the public involvement record described in this section shows that the Forest fully complied with all of the CEQ requirements, culminating with posting of the EIS and proposed ROD to the internet on August 27, 2014.

6. Legal and Regulatory Compliance

My decision complies with the laws, policies and executive orders listed below and described in EIS Chapter 3.

6.01 FINDINGS REQUIRED BY LAWS AND REGULATIONS

The Rim Recovery project was prepared in accordance with the following laws and regulations.

National Environmental Policy Act

The National Environmental Policy Act of 1969 (NEPA) requires that all major federal actions significantly affecting the human environment be analyzed to determine the magnitude and intensity of those impacts and that the results be shared with the public and the public given opportunity to comment. The regulations implementing NEPA further require that to the fullest extent possible, agencies shall prepare EISs concurrently with and integrated with environmental analyses and related surveys and studies required by the Endangered Species Act of 1973, the National Historic Preservation Act of 1966, and other environmental review laws and executive orders. Other laws and regulations that apply to this project are described below.

Clean Air Act

The Clean Air Act of 1970 provides for the protection and enhancement of the nation's air resources. No exceeding of the federal and state ambient air quality standards is expected to result from any of the alternatives. The Clean Air Act makes it the primary responsibility of States and local governments to prevent air pollution and control air pollution at its source.

California has a plan that provides for implementation, maintenance, and enforcement of the primary ambient air quality standards. This project is located in an area designated as non-attainment for Ozone. The burn treatments under Modified Alternative 4 will be conducted under an EPA approved California Smoke Management Program (SMP). Under the revised Conformity Rules the EPA has included a Presumption of Conformity for prescribed fires that are conducted in compliance with a SMP; therefore, the federal actions conform and no separate conformity determination is indicated (EIS Chapter 3.02).

Clean Water Act

The Clean Water Act of 1948 (as amended in 1972 and 1987) establishes federal policy for the control of point and non-point pollution, and assigns the states the primary responsibility for control of water pollution. The Clean Water Act regulates the dredging and filling of freshwater and coastal wetlands. Section 404 (33 USC 1344) prohibits the discharge of dredged or fill material into waters (including wetlands) of the United States without first obtaining a permit from the U.S. Army Corps of Engineers. Wetlands are regulated in accordance with federal Non-Tidal Wetlands Regulations (Sections 401 and 404). No dredging or filling is part of this project and no permits are required.

Compliance with the Clean Water Act by national forests in California is achieved under state law. The California Water Code consists of a comprehensive body of law that incorporates all state laws related to water, including water rights, water developments, and water quality. The laws related to water quality (sections 13000 to 13485) apply to waters on the national forests and are directed at protecting the beneficial uses of water. Of particular relevance for the Rim Recovery project is section 13369, which deals with non-point-source pollution and best management practices. As described in the EIS (Chapter 3.14), all actions in Alternative 4 (hence Modified Alternative 4 also)

result in the maintenance of the applicable beneficial uses of water in the Water Quality Control Plan for the California Central Valley Water Quality Control Board.

Endangered Species Act

Section 7 (d) of the Endangered Species Act (ESA) of 1973 requires that after initiation of consultation required under section 7(a)(2), a Federal agency "shall not make any irreversible or irretrievable commitment of resources with respect to the agency action which has the effect of foreclosing the formulation or implementation of any reasonable and prudent alternative which would not violate subsection (a)(2)."

The Rim Fire started on August 17, 2013. Several days later, it became clear the Rim Fire was a large incident, the forest initiated contact with the USFWS to alert them of potential impacts from the fire or fire suppression activities to listed species, including valley elderberry longhorn beetle and listed or candidate amphibian species. Forest service biologists conducted a field trip with a USFWS biologist in the Rim Fire burn area on November 4, 2013 to discuss conditions and concerns for listed species.

The Forest Service then prepared a Biological Assessment (BA) and a subsequent addendum following a meeting with USFWS, considering the effects to three federally listed species: California red-legged frog (Threatened), Sierra Nevada yellow-legged frog (Endangered), and valley elderberry longhorn beetle (Threatened) are found within the project analysis area in Tuolumne County, California (USFWS 2014). That BA requested concurrence with the determination that the overall project 'may affect, not likely to adversely affect" the valley elderberry longhorn beetle, and "may affect, likely to adversely affect" California red-legged frog and Sierra Nevada yellow-legged frog. As such, the Forest Service engaged with the USFWS in formal consultation and requested a Biological Opinion (BO) in support of these determinations with the acknowledgement that effects to individuals or habitat are not discountable.

The determination of "may affect, likely to adversely affect" for California red-legged frog and Sierra Nevada yellow-legged frog was limited to 7 locales. Section 7(a)(2) of the ESA requires Federal agencies, in consultation with USFWS and the National Marine Fisheries Service (NMFS), to insure that their actions are "not likely to jeopardize the continued existence of any" listed species (or destroy or adversely modify its designated critical habitat; 16 U.S.C. § 1536(a)(2)). As such, my decision is that no operational implementation activities will occur in those 7 locales as part of this decision until such time as formal consultation with USFWS results in issuance of a BO.

Approval and operational implementation of Rim Recovery project activities outside of the 7 very limited locales referred to above during consultation and prior to completion of formal consultation with USFWS and issuance of a BO is consistent with the requirements of ESA Section 7(d) because approval and/or conduct of these activities will not foreclose the formulation or implementation of any Reasonable and Prudent Alternative (RPA) measures that may be necessary to avoid jeopardy (or the likely destruction or adverse modification of critical habitat). The project does not lie within a critical habitat unit for the California red legged frog per the Federal Register (March 17, 2010; Volume 75, Number 51) and is not within a proposed critical habitat unit for the Sierra Nevada yellow legged frog per the Federal Register (April 25, 2013; Volume 78, Number 80).

Consistent with such, the Rim Recovery project unit specific treatments detailed in Table B.02-1 (Appendix B) reflect project management requirements and the content of the BA and subsequent addendum including minimization measures. No operational implementation activities or treatments associated with the 7 very limited locales related to California red-legged frog and Sierra Nevada yellow-legged frog will be undertaken prior to completion of formal consultation with USFWS and issuance of a BO.

Environmental Justice

Executive Order 12898 "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Population" requires that federal agencies make achieving environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health and environmental effects of their programs, policies, and activities on minority populations and low-income populations. As described in the EIS (Chapter 3.10), Alternative 4 (hence Modified Alternative 4 also) will not disproportionally impact minority or disadvantaged groups.

Floodplain Management

Executive Order 11988 applies to Floodplain Management. Floodplains are found along stream channels throughout the project area. Implementation of this decision would maintain or improve the existing condition of these floodplains by maintaining or improving meadow conditions. The intent of Executive Order 11988 would be met since this project would not affect floodplains in the Rim Recovery analysis area and thereby would not increase flood hazard. As described in the EIS (Chapter 3.14) no measurable changes in stream flow are anticipated from treatment actions under Alternative 4 (hence Modified Alternative 4 also).

Migratory Bird Treaty Act

The Migratory Bird Treaty Act decreed that all migratory birds and their parts (including eggs, nests, and feathers) were fully protected. Under the Act, taking, killing or possessing migratory birds is unlawful. The original intent was to put an end to the commercial trade in birds and their feathers that had wreaked havoc on the populations of many native bird species. On January 17, 2001, President Clinton signed an executive order (Executive Order 13186) directing executive departments and agencies to take certain actions to further implement the Migratory Bird Treaty Act (FR Vol. 66, No.11, January 17, 2001).

The Forest Service and USFWS entered into a memorandum of understanding (MOU) to promote the conservation of migratory birds as a direct response to the executive order (USDA and USFWS 2008). One of the steps outlined for the Forest Service is applicable to this analysis: "Within the NEPA process, evaluate the effects of agency actions on migratory birds, focusing first on species of management concern along with their priority habitats and key risk factors." The Forest Service additionally agreed, to the extent practicable, to evaluate and balance benefits against adverse effects, to pursue opportunities to restore or enhance migratory bird habitat, and to consider approaches for minimizing take that is incidental to otherwise lawful activities.

This decision complies with the Migratory Bird Treaty Act but may result in an "unintentional take" of individuals during implementation of the approved actions. However the project complies with the USFWS Director's Order #131 related to the applicability of the Migratory Bird Treaty Act to Federal agencies and requirements for permits for "take". In addition, this project complies with Executive Order 13186 because the analysis meets agency obligations as defined under the January 16,2001 Memorandum of Understanding between the Forest Service and USFWS designed to complement Executive Order 13186 (Migratory and Landbird Conservation Report 2014). If new requirements or direction result from subsequent interagency memorandums of understanding pursuant to Executive Order 13186, this project would be reevaluated to ensure that it is consistent.

National Forest Management Act

The National Forest Management Act (NFMA) of 1976 amends the Forest and Rangeland Renewable Resources Planning Act of 1974 and sets forth the requirements for Land and Resource Management Plans for the National Forest System.

The Forest Service completed the Stanislaus National Forest Land and Resource Management Plan (Forest Plan) on October 28, 1991. The "Forest Plan Direction" (USDA 2010a) presents the current Forest Plan management direction, based on the original Forest Plan, as amended. The Forest Plan identifies land allocations and management areas within the project area including: Wild and Scenic Rivers, Proposed Wild and Scenic Rivers, Critical Aquatic Refuge (CAR), Riparian Conservation Areas (RCAs), Near Natural, Scenic Corridor, Special Interest Areas, Wildland Urban Intermix, Protected Activity Centers (PACs), Old Forest Emphasis Areas, and Developed Recreation Sites.

The Forest Plan and its amendments were prepared pursuant to the 1982 version of the National Forest Management Act (NFMA) planning regulations (36 C.F.R. § 219 (1983)). The current regulations, adopted in 2012 supersede those regulations, as well as other versions of the NFMA planning regulations (36 C.F.R. § 219.17(c) "This part supersedes any prior planning regulation."). The current NFMA planning regulations do not apply to this project (36 C.F.R. § 219.7(c) "None of the requirements of this part apply to projects or activities on units with plans developed or revised under a prior planning rule …"). Therefore, the sole NFMA duty applicable to this project is for the project to be consistent with the governing Forest Plan[8].

The Forest Plan Compliance document (project record) identifies the Forest Plan S&Gs applicable to this project and provides related information about compliance with the Forest Plan. Based on my review of that document and other information in the project record, I determined that Modified Alternative 4 is consistent with the Forest Plan and all other requirements of the National Forest Management Act.

National Historic Preservation Act

The National Historic Preservation Act (NHPA) of 1966 is the principal, guiding statute for the management of cultural resources on NFS lands. Section 106 of NHPA requires federal agencies to consider the potential effects of a Preferred Alternative on historic, architectural, or archaeological resources that are eligible for inclusion on the National Register of Historic Places and to afford the President's Advisory Council on Historic Preservation an opportunity to comment. The criteria for National Register eligibility and procedures for implementing Section 106 of NHPA are outlined in the U.S. Code of Federal Regulations (36 CFR Parts 60 and 800, respectively). Section 110 requires federal agencies to identify, evaluate, inventory, and protect National Register of Historic Places resources on properties they control.

The Stanislaus National Forest developed a specialized agreement: "Programmatic Agreement Among United States Department of Agriculture, Forest Service, Stanislaus National Forest, the California State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Program of Rim Fire Emergency Recovery Undertakings, Tuolumne County, California" (Rim PA 2014). This agreement defines the Area of Potential Effects (APE) (36 CFR 800.4(a)(1)) and includes a strategy outlining the requirements for cultural resource inventory, evaluation of cultural resources, and effect determinations; it also includes protection and resource management measures that may be used where effects may occur. Additionally, this agreement provides opportunities to remove both commercially valuable timber and hazard trees from within site boundaries utilizing a variety of harvest methods.

[8] The Forest Plan, although developed pursuant to the 1982 planning regulations, did not incorporate any specific aspects of those planning regulations. For example, the Forest Plan includes Management Indicator Species (MIS) and was designed to maintain the viability of wildlife species, as required by the former 36 C.F.R. § 219.19 regulations, the Forest Plan did not incorporate any of the particular legal requirements from the 1982 regulations related to MIS or viability. Therefore, the 1982 regulations are not directly applicable to this project.

Protection of Wetlands

Executive Order 11990 requires protection of wetlands. Wetlands within the project area include meadows, stream channels, springs, fens, and shorelines. The EIS (Chapter 3.03 and Chapter 3.14) and the Watershed Report (project record) address wetlands and riparian vegetation. This project is consistent with Executive Order 11990 since this project would maintain or improve the condition of wetlands in the Rim Recovery project area (EIS Chapter 3.14).

6.02 FINDINGS RELATED TO SPECIAL AREAS

As summarized below, my decision complies with the laws, regulations and policies that pertain to Inventoried Roadless Areas, Special Interest Areas, Wild and Scenic Rivers, and Wilderness.

Inventoried Roadless Areas

The EIS (Chapter 3.01) describes all or portions of 3 Inventoried Roadless Areas (IRAs) located on NFS lands within the Rim Fire perimeter: 1) the Cherry Lake IRA (1,000 acres) is located in the east-central portion of the Forest adjacent to the Emigrant Wilderness and Yosemite National Park; 2) the North Mountain IRA (8,100 acres) is located in the southeast part of the Forest adjacent to Yosemite National Park; and, 3) the Tuolumne River IRA (17,300 acres) is located in the southwest part of the Forest. It contains the lower Clavey River and about 18 miles of the Tuolumne Wild and Scenic River.

My decision does not include any actions within or adjacent to these IRAs. Nearby short-term road maintenance and other project induced noise is consistent with the Roadless Area Characteristics[9] identified in the 2001 Roadless Rule. Therefore, my decision is not likely to result in direct, indirect or cumulative effects on those characteristics.

Special Interest Areas

The EIS (Chapter 3.12) describes 3 Special Interest Areas (SIAs) located within the Rim Fire perimeter: Bourland Creek Trestle Historic Area; Pacific Madrone Botanic Area; and, Jawbone Falls Heritage Area. The Rim Recovery project does not include treatment units within or adjacent to the Bourland Creek Trestle SIA; therefore, that SIA was not included in the analysis. Forest Plan direction for SIAs is to protect values, make educational opportunities available and preserve the integrity of the special interest feature for which the areas were established (USDA 2010a, p. 129).

Pacific Madrone SIA

Salvage and fuels reduction in the Pacific Madrone SIA will be conducted in such a way that approved actions will not damage the integrity of the unique botanical features, the madrone trees, or seedlings and saplings.

Jawbone Falls SIA

Salvage and roadside hazard tree harvest would have no adverse effect to the Jawbone Falls SIA. Use of existing breaches within linear sites, such as historic railroad grades and trails, would cause no adverse effect to the Jawbone Falls SIA. Use of existing and development of new water sources are not anticipated to affect the Jawbone Falls SIA.

[9] Roadless Area Characteristics are: high quality or undisturbed soil, water, and air; sources of public drinking water; diversity of plant and animal communities; habitat for threatened, endangered, proposed, candidate, and sensitive species and for those species dependent on large, undisturbed areas of land; primitive, semi-primitive non- motorized, and semi-primitive motorized recreation opportunities; reference landscapes; natural appearing landscapes with high scenic quality; traditional cultural properties and sacred sites; and, other locally identified unique characteristics. (66 Federal Register 9, January 12, 2001; p. 3245)

Wild and Scenic Rivers

The EIS (Chapter 3.12) describes one congressionally designated and two proposed Wild and Scenic Rivers within the Rim Fire perimeter. All 29 miles of the designated Tuolumne Wild and Scenic River on NFS lands is within the Rim Fire perimeter. The Clavey Proposed Wild and Scenic River includes 33 miles of Wild and 14 miles of Scenic segments. The Rim Fire affected 23.5 miles of the 47 mile river corridor: 7.3 miles of Scenic classification and 16.2 miles of Wild classification. All two miles of the South Fork Tuolumne Proposed Wild and Scenic River is within the Rim Fire perimeter.

Modified Alternative 4 will not affect the free flowing conditions of any Wild and Scenic Rivers since no approved actions occur in the river channels. No approved actions will occur within the Tuolumne Wild and Scenic River and South Fork Tuolumne Proposed Wild and Scenic River corridors. Hazard tree removal on portions of roads 1N01 and 2N40 will occur within the Clavey Proposed Wild and Scenic River corridor with short-term effects on the Scenic ORV that would be mitigated over time by regrowth of vegetation.

The approved actions outside the river corridors are of short duration and do not degrade the Fish, Scenic, Recreation or Wildlife Outstandingly Remarkable Values (ORVs) which were affected by the Rim Fire itself. Where approved actions are within sight distance of Wild and Scenic Rivers, distance and geographic features obscure most treatments from the casual observer or users of those areas. Vegetation recovery, woody debris in stream channels and hazard reduction at recreation sites all contribute to the eventual recovery of these compromised values. Temporary effects on recreational opportunities may occur along roads or trails, or in areas, that are closed during project implementation.

EIS Chapter 3.03 (Aquatic Species) and EIS Chapter 3.14 (Watershed) address effects on water-based (Fish and Water Quality) values. EIS Chapter 3.08 (Recreation) addresses effects on Recreation and Scenic values. EIS Chapter 3.15 (Wildlife) addresses effects on wildlife values. Based on the analysis in the EIS, effects on ORVs within the river corridors are minimal and short-term, and no negative cumulative effects are expected.

Wilderness

The EIS (Chapter 3.12) describes two congressionally designated Wildernesses within the Rim Fire Perimeter: the Emigrant Wilderness on NFS lands; and, the Yosemite Wilderness in Yosemite National Park. The geographic extent of that analysis is the Wilderness within one half mile of proposed activities. No approved actions will occur within the Wildernesses and no approved actions are adjacent to the Emigrant Wilderness.

Three approved treatment units (O201A, O201B and P201) are directly adjacent to the Yosemite Wilderness. Modified Alternative 4 excludes salvage harvest in those 3 units; however, some of the dead material within these areas will be removed through fuels reduction in order to promote deer passage through this important area from Yosemite National Park to critical deer winter range on the Forest. Portions of treatment unit Q14A are within 0.25 miles and likely visible from the Yosemite Wilderness.

Based on the analysis in the EIS, Modified Alternative 4 would have minor effects on the natural character of the Yosemite Wilderness due to short-term actions adjacent to the Wilderness. Modified Alternative 4 also provides beneficial effects by reducing potential future fire spread and intensity, contributing to preserving and protecting Wilderness character, including the natural quality of the landscape within and outside the Wilderness.

7. Implementation

Implementation of this decision may begin immediately after publication of the Notice of Availability in the Federal Register.

8. Administrative Review Opportunities

Emergency Situation Determination

In order to facilitate implementation of this project, the Forest Service Chief granted an Emergency Situation Determination (ESD) pursuant to 36 CFR 218.21 (78 Federal Register 59, March 27, 2013; p. 18481-18504) on April 23, 2014. An emergency situation is a situation on NFS lands for which immediate implementation of a decision is necessary to achieve one or more of the following: relief from hazards threatening human health and safety; mitigation of threats to natural resources on NFS or adjacent lands; avoiding a loss of commodity value sufficient to jeopardize the agency's ability to accomplish project objectives directly related to resource protection or restoration (36 CFR 218.21(b)). The determination that an emergency situation exists is not subject to administrative review (36 CFR 218.21(c)). With an ESD granted, the project is not subject to the pre-decisional objection process (36 CFR 218.21(d)).

9. Contact Person

For additional information regarding this project, contact Maria Benech at the Stanislaus National Forest; 19777 Greenley Road; Sonora, CA 95370; or, call (209) 288-2116.

10. Signature and Date

August 28, 2014

SUSAN SKALSKI
Forest Supervisor
Stanislaus National Forest

Date

References

CDFW 2014e. Wildlife Report to Tuolumne County Natural Resource Committee. August 12, 2014. California Department of Fish and Wildlife.

Frazier, J. 2006. Mechanized Equipment Operations in Riparian Conservation Areas. Unpublished. Forest Service, Stanislaus National Forest. Sonora, CA

Long, J. 2014. Research Brief: Impacts of Extreme Fires in the Sierra Nevada. Research Brief, April 2014. Forest Service, Pacific Southwest Research Station. Davis, CA

Rim PA 2014. Programmatic Agreement Among United States Department of Agriculture, Forest Service, Stanislaus National Forest, the California State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Program of Rim Fire Emergency Recovery Undertakings, Tuolumne County California. August 1, 2014.

Tingley, M.W., R.L. Wilkerson, and R.B. Siegel. 2014. Modelling expected density of black-backed woodpeckers at the Rim fire, California: a decision-support tool for post-fire management.

USDA 2002. Investigating water quality in the pacific southwest region: best management practices evaluation program user's guide. Forest Service, Pacific Southwest Region. Vallejo, CA

USDA 2004. Sierra Nevada Forest Plan Amendment Final Supplemental Environmental Impact Statement and Record of Decision, Biological Opinion, Assessment, and Evaluation. Forest Service, Pacific Southwest Region. Vallejo, CA

USDA 2010a. Stanislaus National Forest, Forest Plan Direction, April 21, 2010. Plus errata. Forest Service, Stanislaus National Forest. Sonora, CA

USDA 2011a. FSH 2509.22 Soil and Water Conservation Handbook, Chapter 10 Water Quality Management Handbook, Best Management Practices. Forest Service, Pacific Southwest Region. Vallejo, CA

USDA 2012a. National Best Management Practices for Water Quality Management on National Forest System Lands, Volume 1-National Core BMP Technical Guide. FS-990a. Washington, DC.

USDA 2012b. Region 5 Soil Management Handbook Amendment – 2550 FSM Amendment. Forest Service, Pacific Southwest Region. Vallejo, CA

USDA 2014d. Rim Fire Recovery Draft Environmental Impact Statement. April 2014. Forest Service, Stanislaus National Forest. Sonora, CA

USDA 2014e. Rim Fire Hazard Trees and Rim Fire Recovery Emergency Situation Determination Request Relevant Information. March 2014. Forest Service, Stanislaus National Forest. Sonora, CA

USDA 2014f. Decision Notice and Finding of No Significant Impact for Big Hope Fire Salvage and Restoration Project. June 24, 2014. Forest Service, Tahoe National Forest. Nevada City, CA

USDA and USFWS 2008. Memorandum of Understanding between the US Department of Agriculture Forest Service and the US Fish and Wildlife Service to promote the conservation of migratory birds. FS Agreement #08-MU-1113-2400-264. Washington, D.C.

USFWS 2014. Federal endangered and threatened species that may be affected by projects in the Stanislaus National Forest. U.S. Department of Interior, Fish and Wildlife Service http://www.fws.gov/sacramento/ES_Species/Lists/es_species_lists_NF-form-page.htm (February 19, 2014).

A. Management Requirements

Aquatic Species

1. Meet habitat needs for Threatened, Endangered and Sensitive (TES) aquatic species:
   a. To avoid California red-legged frog (CRLF) take, fell trees away from 1) 0.16 miles of Middle Fork Tuolumne River located in unit V10; 2) 2.7 miles of unnamed stream (flowing out of Birch Lake) and tributary in unit U01D; and 3) Homestead pond located in unit Y02.
   b. Ensure CRLF cover is provided in the upland habitat located within unit U01D. Consultation between the Sale Administrator and an aquatic biologist will occur during harvest. If the area is found to be deficient in downed material, drop and lop dead trees 8 to 16 inches dbh uniformly across the landscape at a rate of 3 to 5 tons per acre.
   c. Prohibit mechanical operations within 1 mile of areas identified as suitable CRLF breeding habitat during the wet season (the first rainfall event depositing more than 0.25 inches of rain on or after October 15 until April 15).
   d. To minimize direct impacts to CRLFs, do not locate burn piles within 100 feet of Homestead Pond located in unit Y02 (suitable CRLF breeding habitat), within 50 feet of the 0.16 miles of Middle Fork Tuolumne River located in harvest unit V10, or within 50 feet of the 2.7 miles of unnamed stream (flowing out of Birch Lake) and tributary in harvest unit U01D (suitable CRLF aquatic non-breeding habitat).
   e. When igniting hand piles within 1 mile of suitable CRLF breeding habitat, ignite only on one side, not to exceed half the circumference of the pile, on the side furthest from the nearest aquatic feature.
   f. Locate roads and landings at least 300 feet away from suitable CRLF breeding and non-breeding aquatic habitat. Construction within 1 mile of suitable habitat must occur during the dry season (typically April 15 through October 15). Table A.01-1 shows road treatments for the breeding habitat areas.
   g. Retain existing downed large woody debris 24 inches and greater in diameter at the small end that is either crossing a perennial channel or within 30 feet of the stream edge. Tops may be removed if fuel issues are a concern; however, 50 percent of the tree bole should remain in the RCA.
   h. To minimize direct impacts to foothill yellow-legged frogs (FYLF), do not fall timber directly across the stream in units F11, F15, F17, F18, H13A, K01, K02, L01, L02B, L203 and L205. This requirement also applies to hazard tree removal along roads: 1N36, 1N41, 1N50, 1N50A, 1N50C and 1N79B.
   i. Prohibit equipment operations in unit U01B, within 300 feet of Abernathy Meadow and Big and Little Kibbie Ponds from June 1 through July 15 and during periods when these features have no standing water.
   j. Use screening devices on water drafting pumps and use pumps with low entry velocity to minimize impacts to aquatic species. A drafting box measuring 2 feet on all sides covered in a maximum of 0.25 inch screening is required.
   k. Provide a minimum of 5 standing dead trees per acre within RCAs adjacent to all perennial channels that are within or bordering salvage units. These snags should have the largest diameters possible and be located within 100 feet of the edge of the active channel.
   l. To minimize direct impact to western pond turtle, limit the ground based equipment to the maximum extent possible in units S01, S04 (within 0.25 mile of the South Fork Tuolumne River), V10 and V14B between June 1 and July 15.
   m. Follow any additional site specific Management Requirements provided by the Fish and Wildlife Service within their Biological Opinion for this project.

Table A.01-1 Units and roads associated with California red-legged frog breeding habitat

Breeding Habitat	Treatment Units	Hazard Tree Removal	Road Treatments
Drew Creek	W03, V06, V10	01N10, 01N10C, 01S30, 01S30B, 01S52, 01S58, 01S58A, 01S58B, 01S58E, 01S58F, 01S61, 01S99Y, 18E217, 18E219, 18EV420, 18EV421, 18EV422, 18EV424, FR14720, FR14722, FR1981, FR36710, FR4100, FR4875, FR7858, FR9139	Temporary Road: FR4100, 18EV420, 18EV422
Birch Lake and Mudd Lake	U01A, Q14A, Q14B, Q15, Q16	01S19, 01S19A, 01S20Y, 01S32, 01S68Y, 01S96, 19EV211, 19EV214, FR8799	Reconstruct: 01S18Y, 01S19, 01S19A, 01S20Y, 01S32, 01S68Y, 01S96, 19EV214
Homestead Pond	Y02[1], Y03[1]	01N10, 01S08YA, 01S21Y, 01S23E, 01S48Y, FR9772, TR9835	Reconstruct: 01S08Y, 01S08YA, FR98671
Hunter Creek and ponds	none	01N01H, 01N01K, 01N02, 01N02B, 01N13, 01N13A, 01N13B, 01N17, 01N17A, 01N18, 01N18A, 01N19, 01N25, 01N25A, 01N25B, 01N27, 01N27A, 01N27B, 01N34Y, 01N35, 01N38, 01N38A, 01N39, 01N40, 01N43, 01N43B, 01N43C, 01N43D, 01N48, 01N48A, 01N48B, 01N54, 01N67, 01N78, 02N11D, 02N11F, 11624B, 11624C, 11708A, 11708B, 11717B, 11719C, 11721E, 11728B, 11728C, 11729A, 11730C, 11731A, 16E179, 18E317, FR7965	none
Harden Flat Ponds	R15, S11, V14B, X25[1], X104[1], X109A[1], X109B[1], X115, X116, X120[1]	01S03B, 01S62, 01S75, 01S75Y	01S03B, 01S09, 01S62, 01S64, 01S75Y, FR5310

[1] Unit includes Fuels and Watershed treatments only. All other treatment units include Salvage and Fuel Reduction.

Cultural Resources

2. Project implementation shall also comply with the Programmatic Agreement Among United States Department of Agriculture, Forest Service, Stanislaus National Forest, the California State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Program of Rim Fire Emergency Recovery Undertakings, Tuolumne County, California (Rim PA 2014).
   a. All sites will be delineated on the ground prior to implementation to prevent impacts during planned treatment activities.
   b. Any tree inadvertently felled into a cultural site boundary is to be left in place until the incident is evaluated by the Heritage Resource specialist and recommendations made to the deciding official.
   c. If a transportation corridor is found to contain an archaeological deposit, all efforts shall be made to avoid using that portion of the travel-way. Alternatively, two foot padding may be placed on the travel-way to protect the resource if the placement of the padding is determined sufficient for resource protection by the Forest Engineer. In addition, the pads should be easily distinguished from the underlying deposit.
   d. In the event that new cultural resources are discovered during project implementation, the district archaeologist must be notified and all activities in the vicinity (150 feet) of the resource shall cease until consultations are completed; in accordance with the PA.
   e. Heritage Resource Surveys: conduct surveys to determine presence of resources following Regional and Rim PA standards.

f. SHPO Consultation: Forest Service consultation with the State Historic Preservation Officer (SHPO) to comply with Section 106 of the National Historic Preservation Act (must be completed prior to implementation).

Fire and Fuels

3. Complete all burning under approved burn and smoke management plans. Acquire burn permits from the appropriate county Air Pollution Control District(s) which will determine when burning is allowed. The California Air Resources Board provides daily information on "burn" or "no burn" conditions. Design and implement burn plans to minimize particulate emissions.
4. Retain 10 to 20 tons per acre coarse woody debris greater than 3 inches. The goal is to maintain a total fuel load of 10 tons per acre, and not to exceed 20 tons per acre when it is needed to meet other resource requirements. Do not exceed 5 tons per acre woody debris less than 3 inches in diameter.
5. Do not exceed 12 inch fuel depth within SPLATs and 18 inch fuel depth outside SPLATs.
6. Whole tree yard merchantable trees within ground based salvage units where fuel levels exceed desired amounts.
7. Place all fuel piles as far from Wilderness and National Park boundaries as possible. Place piles behind remaining vegetation/topography and out of view.

Invasive Species

8. Prevent introduction and spread of noxious weeds. Conduct a pre-project implementation invasive plant inventory of all project areas subject to project associated ground disturbance. This inventory, along with previous survey information, will be utilized to implement the requirements below.
   a. Flag and avoid infestations of high and moderate priority weeds in all project locations subject to ground disturbance from either mechanical or foot traffic (e.g. project units, staging/landing areas, turnouts, roads). Units currently included are: B32, D04B, F11, F16, F23A, H11, H12X, K02, L04, L202, L203, L204, L205, L206, M202A, M203, N01A through N01J, Q14A, R04A, R04B, R12X, R17X, R19A, R19B, R19D, S02, S03, V10, V13, V14B, V14C, X04, X06, X116, X118X and X119X.
   b. In areas needed for implementation of the planned activities, manually treat new or expanding portions of post-Rim Fire infestations before seed dispersal. Manual treatment will entail the cutting, digging, or pulling of all flower heads and/or vegetative reproductive parts (i.e. rhizomatous root parts). The Weed Risk Assessment (project record) describes species specific treatments.
   c. Where re-using landing and/or staging areas is necessary, the topsoil (top 6-8 inches) may be pushed into a wind-row and covered to prevent seed dispersal. Topsoil will be pushed back into place following project completion.
   d. Conduct maintenance activities in a manner which reduces the risk of weed spread, such as: avoiding soil movement out of weed sites; grading toward weed infestations, not away; or utilizing manual methods.
   e. Implement the equipment cleaning requirements in the standard contract provisions for all contract operations and activities.
   f. The Forest Service will designate the order, or progression, of unit completion to emphasize treating uninfested units before treating infested units to reduce the risk of weed spread from infested units into uninfested units. Clean equipment before moving from infested sites and prior to being transported from the project area.
   g. Use certified weed-free mulches (woodstraw and rice straw are preferred) where available. Stage these materials in weed-free sites only.

h. Obtain construction materials, including crushed rock, drain rock, riprap and soil, from sources free of high and moderate priority weeds. If sources do contain these priority weeds either flag and avoid or move topsoil to a nearby location that will not be disturbed and cover.

Range

9. Protect range resources:
   a. Maintain existing cattleguards to Forest Service standards during post-harvest maintenance.
   b. Avoid damage to rangeland infrastructure (fences, water developments, cattleguards) during project implementation.
   c. Any serviceable or intact infrastructure that is damaged during implementation must be repaired to Forest Service standards.
   d. Avoid snag retention adjacent to critical range infrastructure.

Recreation

10. Protect recreation resources:
   a. No log truck hauling will occur on Evergreen Road or Cherry Lake Road: from July 3 through July 5; during Memorial Day and Labor Day weekends (3:00 p.m. Friday through Monday); or, on other weekends (3:00 p.m. Friday through Sunday) between Memorial Day and Labor Day.
   b. No operations on weekends beginning Memorial Day through Labor Day in areas adjacent to Lost Claim and Sweetwater Campgrounds (units Y01B, Y01D, V12A and V12B).
   c. Identify and protect National Forest System Trails (NFST) during operations. Trails, if damaged, will be restored in kind according to Forest Service standards including the placement of rolling dips.
   d. Close skid trails to motorized travel with earth berms, logs and/or rocks after operations are complete. Do not use stumps or root wads to close skid trails.
   e. Avoid using water sources in developed recreation sites while facilities are open to public use.

Sensitive Plants

11. Ensure consistency with Forest Plan and other direction for sensitive and watch list plants.
   a. For roadside hazard tree abatement, where it is not possible to fully avoid a Sensitive Plant occurrence, a botanist will review the site with the Sale Administrator and advise on the least impactive method to use for the site, such as timing of impacts, directionally fall trees away from dense concentrations, full suspension removal of the log, partial suspension, or buck and leave the log.
   b. Hide, obscure or block appearance of motorized access created by the project to “lava cap” habitats. Existing patches of live or dead brush or other vegetation on the edges of the “lava caps” can be utilized for this purpose.
   c. In order to protect occurrences of *Peltigera gowardii*, conduct project activities in such a way that sediment is not added to or accumulates within occurrences, especially in Corral Creek at Sections 17 and 20, T1N, R18E, the unnamed tributary to Clavey River in Section 18, T1N, R18E; the unnamed tributary to Skunk Creek in Section 21, T1N, R18E; and, Twomile Creek in Section 36, T3N, 17E; and Section 1, T2N, R17E.
   d. During helicopter salvage operations, avoid flying logs over cliff habitats in and adjacent to unit X23. Off-road equipment will not track within 25 feet of the bases or tops of cliffs and large rock outcrops, or through gravelly openings with shallow soils in units X18, X19 and X23 nor in the roadside hazard tree removal of Forest Roads 1S60Y, 1S79, 1S80, 2S65D, 2S66Y, and 2S66YA. Manual removal of fuels, directional felling and tree removal using an articulating arm or equipment which allows for full suspension may occur in these equipment

exclusion areas during the dry, non-growing period for the rare plant species, approximately July 1 through November 30

e. Avoid adverse effects to Pacific Madrone (*Arbutus menzies*ii), Tanoak (*Notholithocarpus densiflorus*), California nutmeg (*Torreya californica*) and Sierra sweet bay (*Myrica hartwegii*) trees and saplings during all project activities. During reconstruction activities, avoid these species unless the trees or saplings create a safety hazard or interfere with the integrity of the road surface. Prune limbs to obtain sight distance rather than masticate the trees or saplings.

f. Flag and avoid known and new occurrences of Sensitive Plants except as allowed below:
   1. Manual fuel reduction may take place within *Clarkia australis*, *Clarkia biloba* ssp. *australis*, *Mimulus filicaulis* or *Mimulus pulchellus* occurrences only during the dry non-growing period (Table A.01-2). Pile or scatter all material outside Sensitive Plant occurrences.
   2. Mastication and skid trail legacy compaction subsoiling may be conducted within *Clarkia australis* occurrences only during the dry non-growing period (Table A.01-2). Do not track masticator through occurrences smaller than 0.25 acre. Minimize tracking in occurrences larger than 0.25 acres. Wherever possible, reach into occurrences with masticator head to conduct the work instead of tracking through.

g. In order to protect the habitat for the Sensitive Plants which occupy "lava cap" soils all equipment and vehicles will remain on roads through this habitat type (i.e. no parking off road, landing construction or staging areas).

Table A.01-2 Growing seasons and appropriate identification periods for select Sensitive Plants

Species	Growing Season	Identification Period	Dry, Non-growing Period[1]
Clarkia australis	December 1 - August 15	June 15 - August 15	August 15 - November 30
Clarkia biloba ssp. australis	December 1 - July 31	May 15 - July 15	August 1 - November 30
Mimulus filicaulis	March 15 - July 15	April 15 - June 30	July 15 - November 30
Mimulus pulchellus	March 1 - June 15	April1 - June 1	June 15 - November 30

[1] The actual dry, non-growing period will be determined by field observations year to year by a Botanist. The dry, non-growing period is the time when these species are most resistant to disturbance activities. All dates are approximate, varying with elevation, weather and site conditions.

Soils

12. Forest Service Manual 2550-Soil Management-R5 Supplement (USDA 2012b) and Forest Plan Direction (USDA 2010a) provide standards and guidelines for soil management and are the basis for soil requirements to minimize potential impacts:
    a. In high burn severity areas, leave a 20 foot buffer of small trees (non-merchantable) adjacent to motorized trail segments, and 10 to 20 tons of surface material.
    b. Ground-based operations will occur when soil moisture is relatively dry in the 4 to 8 inch depth range. Consultation with a Soil Scientist will occur prior to start-up of operations. Suspend operations whenever soil moisture conditions are such that excessive damage would occur. In high burn severity areas, use the Very High Erosion Hazard Rating when considering application of erosion control measures.
    c. Where present, maintain soil cover, surface organic matter and soil organic matter consistent with the Forest Plan. If the existing condition is deficient, watershed specialists may prescribe activities to increase soil cover on sensitive soils or where accelerated runoff and erosion could pose unacceptable risk to resources as a result of the planned activities. These activities could include mastication or lop and scatter of trees less than 10 inches for mastication and up to 16 inches for drop and lop, a cut-to-length logging system, drop and leave, certified weed-free straw mulch applications or seeding with approved native seed. Generally, these

treatments would only be considered in units with greater than 15 percent slopes, high Erosion Hazard Ratings and an existing or predicted deficiency in ground cover that would persist longer than one season.

d. Use existing skid trails and landings except where unacceptable resource damage may result (i.e. skid trails running on 40 percent slope). Limit disturbed skid trail footprint (main and branching secondary trails) to less than 15 percent of the unit area or to the existing disturbed area.
e. Subsoil main skid trails and waterbar remaining skid trails prior to each winter season and unit close out. Subsoiling will occur on all primary skid trails and on secondary skid trails found to be creating an unacceptable risk to soil or water resources. In addition, landings and temporary roads will be subsoiled and all erosion control measures applied after use is completed. Subsoiling may be excluded from areas of high soil sensitivity, such as shallow or rocky soils, when recommended by a soil scientist. Obliterate out-sloped berms. Outslope re-used skid trails where gullies formed from water concentration along insloped segments.
f. Segments of pre-existing skid trails and landings causing watershed issues (i.e. concentrating water, gullying) will be subsoiled and waterbarred for resource protection, including those not used during implementation.
g. Limit ground based equipment to less than 35 percent slopes unless a soil scientist evaluates operations on the steeper slopes. Feller bunchers may do short pitches up to 45 percent slope.

Terrestrial Wildlife

13. Ensure consistency with Forest Plan and Regional Conservation strategies for terrestrial wildlife. Protected Activity Centers (PACs) apply to spotted owls, goshawks, and great gray owls.
    a. Provide for a Forest Carnivore Connectivity Corridor (FCCC) for fisher and marten, linking Yosemite National Park, the North Mountain inventoried roadless area west to the Clavey River, by managing the following salvage units to Old Forest Emphasis Area (OFEA) snag and down woody material retention standards: L02A, L02AX, L05AX, M1 through M10, M12, M13, M15, M16, M18, M19, and N01A through N01J.
    b. Snag retention in OFEA, Home Range Core Area (HRCA) and FCCC units: the intent is to retain legacy structure where it exists for long-term resource recovery needs (i.e., the development of future old forest habitat with higher than average levels of large conifer snags and down woody material). Retain all hardwood snags greater than or equal to 12 inches diameter at breast height (dbh). Retain an average of 30 square feet of basal area of conifer snags across each unit by starting at the largest snag and working down, with a minimum of four and a maximum of 6 per acre.
    c. In OFEA, HRCA, FCCC, and in roadside hazard units within PACs, retain the largest size classes of down woody material at a rate of 15 to 20 tons per acre on a unit basis. In all units, emphasize down woody material retention greater than 100 feet from roadsides.
    d. Where roadside hazard treatments are within PACs and HRCAs, add acreage to the PAC and/or HRCA equivalent to the treated acres of the most suitable habitat available.
    e. Within viable post-fire PACs, flag and avoid current and historic nest trees and avoid altering screening vegetation within 500 feet; if hazard abatement is deemed immediately necessary, coordinate with a wildlife biologist and with other disciplines (e.g. recreation) as needed to identify options for the deciding official.
    f. Reduce LOPs in PACs to 0.25 mile area around a nest site if surveys are conducted.
    g. Within critical winter deer range and migration corridors, remove or pile and burn non-merchantable material to protect remnant oaks and achieve desired cover/forage ratios identified in collaboration with the California Department of Fish and Wildlife and partners. This includes units L03, L04, L07, L201 through L206, M201 through M204, O201A, O201B and P201.

h. Flag and avoid hardwood aggregations and meadows and seeps within units. Aggregations are 0.1 to 0.5 acre groups of sprouting hardwood or of meadow/seep vegetation. Groups or meadows/seeps may be linear along drainages. Reaching in and end lining allowed. Ground-based equipment prohibited. Exceptions should be limited but may be made for operability in consultation with the sale administrator and project biologist.

i. In all units retain:
   1. All large hardwood snags greater than or equal to 12 inches dbh.
   2. A minimum of 4 snags (in the largest size class available) per acre averaged across ten acres in mixed conifer forest type.
   3. A minimum of six snags per acre in red fir forest type.
   4. The largest size classes of dead and downed logs greater than or equal to 12 inches in diameter at the midpoint at a rate of 10 to 20 tons per acre.

j. Maintain a LOP prohibiting vegetation treatments, new construction, blasting, landing construction, and helicopter flight paths within 0.25 mile of a PAC during the breeding season for California spotted owls (March 1 through August 31), northern goshawks (February 15 through September 15), great gray owls (March 1 through August 15) and within 0.5 miles of the known bald eagle nest (January 1 through August 31) unless surveys conducted by a Forest Service biologist confirm non-nesting status.

k. Conduct surveys in compliance with the Pacific Southwest Region's survey protocols to establish or confirm the location of the nest activity center for spotted owl, great gray owl and goshawk.

l. Flag and avoid elderberry plants greater than one inch stem diameter that occur below 3,000 feet elevation and within 100 feet of planned activities (units V10, V12A, V12B, V13, V14B, X15, X16, X25, Y01A, Y01C, and Y01D and roads identified for hazard tree removal).

   1. Prohibit ground based mechanical operations and burning within 50 feet of elderberry plants.
   2. Pile burning and mechanical activities within 100 feet of flagged shrubs will be subject to an LOP from April 1 through June 30 of any given year to avoid fire and dust impacts to beetles.
   3. If additional elderberry shrubs with stems over 1 inch diameter are found prior to or during project implementation, they will be similarly avoided and the District wildlife biologist will be notified immediately and adequate mitigation measures will be taken.

m. Notify the District Wildlife Biologist if any Federally Threatened, Endangered, Candidate species or any Region 5 Forest Service Sensitive species are discovered during project implementation so that LOPs or other protective measures can be applied, if needed.

Vegetation

14. Apply a registered borate compound to all freshly cut fir stumps 14 inches and greater in diameter (green trees only) to limit the spread and establishment of new centers of annosum root disease within harvest areas where live trees still exist. Do not apply fungicide within 10 feet of surface water, when rain is falling or when rain is likely that day (i.e. National Weather Service forecasts 50 percent or greater chance); follow all State and Federal rules and regulations as they apply to pesticides.

15. Protect and avoid all surviving proven and candidate rust resistant sugar pine trees during operations.

Watershed

16. Management requirements designed to protect water quality and watershed conditions are derived from Regional and National BMPs (USDA 2011a, USDA 2012a) and Riparian Conservation Objectives (RCOs) (USDA 2004). Riparian resources within Riparian Conservation Areas (RCAs) and the Critical Aquatic Refuge (CAR) will be protected through compliance with the RCOs outlined in the Forest Plan (USDA 2010a). BMPs protect beneficial uses of water by preventing or minimizing the threat of discharge of pollutants of concern. BMPs applicable to this project are listed below with site-specific requirements and comments. Project planners and administrators (e.g., layout, Sale Administrator, Contracting Officer Representative) are responsible for consulting with a hydrologist and/or soil scientist prior to or during project implementation for interpretation, clarification, or adjustment of watershed management requirements.

Table A.01-3 Operating requirements for mechanized equipment operations in RCAs

Stream Type[1]	Zone	Width (feet)	Equipment Requirements	Element	Operating Requirements
Perennial/ Intermittent and Special Aquatic Features (SAFs)	Exclusion	0 - 15	Mechanical Harvesting/ Shredding[2]: Prohibited		
		0 - 50	Skidding[3]: Prohibited		
	Transition	15 - 100	Mechanical Harvesting/ Shredding: Allowed	Streamcourse Debris	Remove activity-created woody debris to above the high water line of stream channels
				Vegetation	Retain remaining post-fire obligate riparian shrubs and trees that have live crown foliage or are resprouting (e.g., willows, alder, dogwoods and big leaf maples)
				Streambanks	Do not damage streambanks with equipment.
		50 - 100	Skidding: Allowed	Skid Trails	Use existing skid trails except where unacceptable impact would result. Do not construct new primary skid trails within 100 feet of the stream
				Stream Crossings	The number of crossings should not exceed an average of 2 per mile
	Outer (Perennial/SAFs)	100 - 300	Mechanical Harvesting/ Shredding/ Skidding: Allowed	Skid Trails	Allow skid trail density and intensity to gradually increase with distance from the Transition Zone
	Outer (Intermittent)	100 - 150	Mechanical Harvesting/ Shredding/ Skidding: Allowed	Skid Trails	Allow skid trail density and intensity to gradually increase with distance from the Transition Zone
Ephemeral	Exclusion	0 - 15	Mechanical Harvesting/ Shredding: Prohibited		
		0 - 25	Skidding: Prohibited		
	Transition	15 - 50	Mechanical Harvesting/ Shredding: Allowed		
		25 - 50	Skidding: Allowed	Stream Crossings	The number of crossings should not exceed an average of 3 per mile

[1] Perennial streams flow year long. Intermittent streams flow during the wet season but dry by summer or fall. Ephemeral streams flow only during or shortly after rainfall or snowmelt. Special aquatic features (SAFs) include lakes, meadows, bogs, fens, wetlands, vernal pools and springs.
[2] Low ground pressure track-laying machines such as feller bunchers and masticators.
[3] Rubber-tired skidders and track-laying tractors.

a. **Mechanized Equipment Operations within RCAs/CAR**. On the Stanislaus National Forest, ground-based mechanized equipment operations in RCAs are divided into three zones. The exclusion zone, at the edge of streams or wetlands, prohibits mechanized equipment use. Next, the transition zone allows light mechanized activity. Last, the outer zone allows activity to increase to standard operations beyond the RCA. Together, these zones comprise a wide, graduated RCA buffer zone intended to achieve RCOs as well as vegetation management objectives. The purpose of mechanized RCA operations is to reduce fuel loading and improve riparian vegetation community condition close to streams and wetlands. These operations are carefully conducted to prevent detrimental soil impacts and retain a high percentage of ground cover in the RCA. Where ground cover is minimal in an RCA, such as following wildfire, specialized low ground pressure vehicles become the primary type of equipment used. They minimize disturbance during timber removal operations and can be used to increase ground cover by chipping and distributing woody debris. Forest guidance for Mechanized Equipment Operations in RCAs (Frazier 2006) as summarized above was developed for RCA vegetation management operations in unburned areas. It has since been revised to include post-wildfire operations. Table A.01-3 provides a summary of the operating requirements for mechanical operations in RCAs.

b. **Management Requirements Incorporating BMPs and Forest Plan S&Gs**. Table A.01-4 presents management requirements pertaining to: erosion control plans; operations in RCAs; road activities; stream crossings; log landings; skid trails; suspended log yarding; water sources, rock borrow pits/quarries, slope and soil moisture limitations, servicing and refueling of equipment; burn piles; application of registered borate compound; water quality monitoring; and, cumulative watershed effects.

Table A.01-4 Management requirements incorporating BMPs and Forest Plan S&Gs

Management Requirements	BMPs/Forest Plan[1]/Locations
Erosion Control Plan - Prepare a project area Erosion Control Plan (USDA 2011a) approved by the Forest Supervisor prior to the commencement of any ground-disturbing project activities. Prepare a BMP checklist before implementation.	**Regional BMPs** 2-13 Erosion Control Plans (roads and other activities) 1-13 Erosion Prevention and Control Measures During Operations 1-21 Acceptance of Timber Sale Erosion Control Measures before Sale Closure **National Core BMPs** Veg-2 Erosion Prevention and Control **Forest Plan S&Gs** 194 (RCO 4) **Locations**: all areas where ground-disturbing activities occur.
Operations in Riparian Conservation Areas - Delineate riparian buffers along streams and around special aquatic features within project treatment units as described above in Table A.01-3. - Fell trees harvested within RCAs directionally away from stream channels and SAFs unless otherwise recommended by a hydrologist or biologist. Fall hazards trees that cannot be removed either parallel to the contour of the slope or into the channel, as recommended by a hydrologist or biologist. - Maintain or provide ground cover (e.g., maintain post-fire conifer needle cast; provide logging slash, straw, wood chips, felled or masticated small burned trees) within 100 feet of perennial and intermittent streams and SAFs to the maximum extent practicable to minimize erosion and sedimentation. A minimum of 50% well distributed ground cover is desired. - Minimize turning mechanical harvesters/shredders in the RCA Transition Zone to limit disturbance. - Exclude mechanized equipment between the near-stream roads that closely parallel both sides of Corral Creek [1N01, 1N08 on the west and 1N74 (south of junction with 1N74C) and 1N74C on the east] unless otherwise recommended by a hydrologist or soil scientist. Smooth out all end lining ruts within this area. The maximum mechanized equipment exclusion width is the RCA width (300 feet).	**Regional BMPs** 1-4 Using Sale Area Maps and/or Project Maps for Designating Water Quality Protection Needs 1-8 Streamside Zone Designation 1-10 Tractor Skidding Design 1-18 Meadow Protection During Timber Harvesting 1-19 Streamcourse and Aquatic Protection 5-3 Tractor Operation Limitations in Wetlands and Meadows 5-5 Disposal of Organic Debris 7-3 Protection of Wetlands **National Core BMPs** Aq Eco-2 Operations in Aquatic Ecosystems Plan-3 Aquatic Management Zone Planning Veg-1 Vegetation Management Planning Veg-2 Erosion Prevention and Control Veg-3 Aquatic Management Zones

Management Requirements	BMPs/Forest Plan[1]/Locations

- The Sale Administrator shall coordinate with a hydrologist prior to operating around Scout Spring Gully (Unit T22).
- The Sale Administrator shall coordinate with a hydrologist prior to operating in unit T27B to protect the Bear Gully restoration site, the stream channel downstream of the site, and the alluvial flat.
- In areas with less than 50% soil cover and slopes greater than 15%, the following requirements apply:
  - From 0-50 feet from perennial and intermittent stream banks, smooth out feller buncher or end lining ruts greater than 4 inches in depth.
  - From 50-100 feet from perennial and intermittent stream banks, smooth out feller buncher or end lining ruts greater than 4 inches in depth or waterbar these ruts following the waterbar spacing guidelines for a very high erosion hazard rating.
- Increase the ground-based equipment exclusion zone in RCAs to 100 feet on slopes greater than 25% with slope lengths greater than 100 feet, high burn severity, and immediately adjacent to perennial and intermittent channels within the following units: D04B, D12, E01B, E02, E03B, F11, G01, G03B, L02D, M01, M05A, M15, N01I, R16, S02, S04, T04B, T04C, T27B, U03, V13, V14B, V14C. Prior to implementation, these sites will be evaluated in the field by a hydrologist or soil scientist to identify on the ground areas where exclusion is required.
	Veg-4 Ground-Based Skidding and Yarding Operations
	Forest Plan S&Gs
	193 (RCO 2)
	194 (RCO 3)
	194 (RCO 4)
	195 (RCO 5)
	Locations: All units containing RCAs and SAFs, and specifically the portions of units mentioned in this section of Table A.01-4.

Road Construction and Reconstruction - Maintain erosion-control measures to function effectively throughout the project area during road construction and reconstruction, and in accordance with the approved erosion control plan. - Stabilize disturbed areas with certified weed free mulch, erosion fabric, vegetation, rock, large organic materials, engineered structures, or other measures according to specification and the erosion control plan. - Set the minimum construction limits needed for the project and confine disturbance to that area. - Adjust surface drainage structures to minimize hydrologic connectivity by: discharging road runoff to areas of high infiltration and high surface roughness; armoring drainage outlets to prevent gully initiation; and, increasing the number drainage facilities within RCAs. - Minimize diversion potential by installing diversion prevention dips that can accommodate overtopping runoff. Place diversion prevention dips downslope of crossing, rather than directly over the crossing fill, and in a location that minimizes fill loss in the event of overtopping. Armor diversion prevention dips when the expected volume of fill loss is significant. - Locate and designate waste areas before operations begin. Deposit and stabilize excess and unsuitable materials only in designated sites. Do not place such materials on slopes with a high risk of mass failure, in areas subject to overland flow (e.g., convergent areas subject to saturation overland flow), or within the RCA. Provide adequate surface drainage and erosion protection at disposal sites. - Do not permit side casting in RCAs. Prevent excavated materials from entering water or RCAs. - Schedule operations during dry periods when rain, runoff, wet soils, snowmelt or frost melt are less likely. Limit operation of equipment when ground conditions could result in excessive rutting, soil compaction (except on the road prism or other surface to be compacted), or runoff of sediments directly to streams. - Stabilize project area during normal operating season when the National Weather Service predicts a 50% or greater chance of precipitation. - Keep erosion-control measures sufficiently effective during ground disturbance to allow rapid closure when weather conditions deteriorate. - Complete all necessary stabilization prior to precipitation that could result in surface runoff. - Scatter construction-generated slash on disturbed areas. Ensure ground contact between slash and disturbed slopes. Windrow slash at the base of fills to reduce sedimentation. Ensure windrows are placed along contours with ground contact between slash and disturbed slope. - Monitor contractor's plans and operations to assure contractor does not open up more ground than can be substantially completed before expected winter shutdowns, unless erosion-control measures are implemented. - Install erosion-control measures on incomplete roads prior to precipitation or the start of winter (November 16 through March 31) and in accordance with the Erosion Control Plan. Remove ineffective temporary culverts, culvert plugs,	**Regional BMPs** 2-2 General Guidelines for the Location and Design of Roads 2-3 Road Construction and Reconstruction 2-8 Stream Crossings 2-13 Erosion Control Plans (roads and other activities) **National Core BMPs** Road-3 Road Construction and Reconstruction **Forest Plan S&Gs** 62 193 (RCO 2) 194 (RCO 4) **Locations**: all new construction and reconstruction.

Management Requirements	BMPs/Forest Plan[1]/Locations
diversion dams, or elevated stream crossings; leaving a channel at least as wide as before construction and as close to the original grade as possible. Install temporary culverts, side drains, cross drains, diversion ditches, energy dissipaters, dips, sediment basins, berms, dikes, debris racks, pipe risers, or other facilities needed to control erosion. Remove debris, obstructions, and spoil material from channels, floodplains, and riparian areas. Do not leave project areas for the winter with remedial measures incomplete. Provide protective cover for exposed soil surfaces.	
Road Maintenance and Operations - Clean ditches and drainage structure inlets only as often as needed to keep them functioning. Prevent unnecessary or excessive vegetation disturbance and removal on features such as swales, ditches, shoulders, and cut and fill slopes. - Maintain road surface drainage by removing berms, unless specifically designated otherwise. - Accompany grading of hydrologically connected road surfaces and inside ditches with erosion and sediment control installation. - Divert springs across roads to prevent them from pooling and diverting on or along the road. A layer of coarse rock with geotextile fabric or other treatments may be necessary. - Ensure that after maintenance activities (i.e., grading/earthwork activities) the final road surface drainage system will remove water from the road surface with the purpose to minimize concentrated runoff to an area. Ensure that existing metal/drain gutters are in working condition and /or install them as needed. - Conduct road watering for maintenance, dust abatement, and road surface protection using approved existing water sources locations. (See Water Sources Development and Use below)	**Regional BMPs** 2-4 Road Maintenance and Operations 2-13 Erosion Control Plans (roads and other activities) **National Core BMPs** Road-4 Road Operations and Maintenance Veg-2 Erosion Prevention and Control **Forest Plan S&Gs** 193 (RCO 2) 194 (RCO 4) **Locations**: all roads with maintenance or project use.
Stream Crossings **Design of New or Reconstructed Crossings** - Design permanent stream crossings (new construction and replacement culverts) to pass the 100-year flood flow plus associated sediment and debris; armor to withstand design flows and provide desired passage of fish and other aquatic organisms. - Locate and design crossings to minimize disturbance to the water body. Use structures appropriate to the site conditions and traffic. Favor armored fords for streams where vehicle traffic is seasonal or temporary, and where the ford design maintains the channel pattern, profile and dimension. - Install stream crossings according to project specifications and drawings. Design should sustain bankfull dimensions of width, depth and slope, and maintain streambed and bank resiliency. - Construct diversion prevention dips to accommodate overtopping of runoff if diversion potential exists. Locate diversion prevention dips downslope of the crossing rather than directly over crossing fill; armor diversion prevention dips based on soil characteristics and risk. Install cross drains (e.g., rolling dips; waterbars) to hydrologically disconnect the road above the crossing and to dissipate concentrated flows. **Construction, Reconstruction and Maintenance Operations** - Keep excavated materials out of channels, floodplains, wetlands and lakes. Install silt fences or other sediment- and debris-retention barriers between the water body and construction material stockpiles and wastes. Dispose unsuitable material in approved waste areas outside of the RCA. - Inspect and clean equipment; remove external oil, grease, dirt and mud and repair leaks prior to unloading at site. Inspect equipment daily and correct identified problems before entering streams or areas that drain directly to water bodies. Remove all dirt and plant parts to ensure that noxious weeds and aquatic invasive species are not brought to the site. - Remove all project debris from the stream in a manner that will cause the least disturbance. - Minimize streambank and riparian area excavation during construction. Stabilize adjacent disturbed areas using mulch, retaining structures, and or mechanical stabilization materials. - Ensure imported fill materials meet specifications, and are free of toxins and invasive species. - Divert or dewater stream flow for all live streams or standing water bodies during crossing installation and invasive maintenance.	**Regional BMPs** 2-8 Stream Crossings 2-13 Erosion Control Plans (roads and other activities) **National Core BMPs** AqEco-2 Operations in Aquatic Ecosystems Road-7 Stream Crossings Veg-2 Erosion Prevention and Control **Forest Plan S&Gs** 62 193 (RCO 2) 194 (RCO 4) **Locations**: all stream crossings on constructed, reconstructed and maintained roads.

Management Requirements	BMPs/Forest Plan[1]/Locations
Closure of Temporary and ML 1 Roads - Remove road stream crossings and other culverts identified at high risk of failure and posing a threat to water quality before a road is closed. - Block closed roads to prevent vehicle access. - Road-stream crossings deemed safe to leave in place will be treated to remove the potential for streamflow diversions in the event of a crossing failure or blockage, and, where needed, will have rock armor added to downstream crossing fill to prevent erosion. - Ensure that the road, culvert, and all hydrologically connected drainage structures are cleaned, and sediment and erosion controls are intact and functioning prior to closure. - Ensure road is effectively drained (e.g. waterbars, dips, outsloping) and treated to return the road prism to near natural hydrologic function. - Treat and stabilize road surfaces through subsoiling, scattering slash, and/or revegetation. Reshape and stabilize side slopes as needed.	**Regional BMPs** 2-6 Road Storage 2-7 Road Decommissioning 2-13 Erosion Control Plans (roads and other activities) **National Core BMPs** Road-6 Road Storage and Decommissioning Veg-2 Erosion Prevention and Control **Forest Plan S&Gs** 57 193 (RCO 2) **Locations**: all roads post-project closed or ML1 status.
Log Landings - Re-use log landings to the extent feasible. Existing landings within RCAs may be used when sedimentation effects can be mitigated by erosion prevention measures. - Do not construct new landings within 100 feet of perennial or intermittent streams and SAFs and 50 feet of ephemeral streams. - See the Soils Management Requirements for subsoiling requirements.	**Regional BMPs** 1-12 Log Landing Location 1-16 Log Landing Erosion **National Core BMPs** Veg-6 Landings Veg-2 Erosion Prevention and Control **Forest Plan S&Gs** 194 (RCO 4) **Locations**: all landings.
Skid Trails - Design and locate skid trails to best fit the terrain, volume, velocity, concentrations and direction of runoff water in a manner that would minimize erosion and sedimentation. - Locate new primary skid trails at least 100 feet from perennial and intermittent streams and SAFs and new secondary skid trails at least 50 feet from perennial and intermittent streams and SAFs. Locate all skid trails at least 25 feet from ephemeral streams. Primary skid trails typically have 20 or more passes and result in detrimental compaction or displacement of soils. Secondary skid trails have fewer passes and result in minor compaction or displacement. - Use existing skid trails wherever possible except where unacceptable resource damage may result. Existing skid trails <100 feet from streams may be used if they are rehabilitated following use to improve infiltration from their current state. - Skid trails within 100 feet of steams will be given priority for subsoiling. - See Soils Management Requirements for additional requirements on rehabilitating skid trails.	**Regional BMPs** 1-10 Tractor Skidding Design 1-17 Erosion Control on Skid Trails **National Core BMPs** Veg-2 Erosion Prevention and Control Veg-4 Ground-Based Skidding and Yarding Operations **Forest Plan S&Gs** 194 (RCO 4) **Locations**: all ground-based yarding system units.
Suspended Log Yarding - Fully suspend logs to the extent practicable when yarding over RCAs and streams. - Locate skyline corridors to minimize damage to live streamside trees or resprouting streamside burned trees and shrubs. - Install skyline corridor erosion control measures prior to each winter season to ensure runoff will be well dispersed and not concentrated down corridors. Measures may include water bars constructed in alternating directions, smoothing of ruts, and/or logging slash lopped to contract specifications.	**Regional BMPs** 1-11 Suspended Log Yarding in Timber Harvesting 2-13 Erosion Control Plans (roads and other activities) **National Core BMPs** Veg-2 Erosion Prevention and Control Veg-5 Skyline and Aerial Yarding Operations **Locations**: all units using skyline yarding systems.
Water Sources - For water drafting on fish-bearing streams: do not exceed 350 gallons per minute for streamflow greater than or equal to 4.0 cubic feet per second (cfs); do not exceed 20% of surface flows below 4.0 cfs; and, cease drafting when bypass surface flow drops below 1.5 cfs. - For water drafting on non-fish-bearing streams: do not exceed 350 gallons per minute for streamflow greater than or equal to 2.0 cfs; do not exceed 50% of surface flow; and, cease drafting when bypass surface flow drops below 10 gallons per minute. Water sources designed for permanent installation, such as piped diversions to off-site storage, are preferred over temporary, short-term-use developments. Locate water drafting sites to avoid adverse effects to in-stream flows and depletion of pool habitat. - Do not allow water drafting from streams by more than one truck at a time. - Do not construct basins at culvert inlets for the purpose of developing a waterhole,	**Regional BMPs** 2-5 Water Source Development and Utilization 2-13 Erosion Control Plans (roads and other activities) **National Core BMPs** WatUses-3 Administrative Water Developments AqEco-2 Operations in Aquatic Ecosystems **Forest Plan S&Gs** 193 (RCO 2) 194 (RCO 4) **Locations**: all water drafting sites.

Management Requirements	BMPs/Forest Plan[1]/Locations
as these can exacerbate plugging of the culvert. - Gradually remove temporary dams when operations are complete so that released impoundments do not discharge sediment into the streamflow - When diverting water from streams, maintain bypass flows that ensure continuous surface flow in downstream reaches, and keep habitat in downstream reaches in good condition. - Locate approaches as close to perpendicular as possible to prevent stream bank excavation. - Treat road approaches and drafting pads to prevent sediment production and delivery to a watercourse or waterhole. Armor road approaches as necessary from the end of the approach nearest a stream for a minimum of 50 feet, or to the nearest drainage structure (e.g., waterbar or rolling dip) or point where road drainage does not drain toward the stream. - Armor areas subject to high floods to prevent erosion and sediment delivery to water courses. - Install effective erosion control devices (e.g., gravel berms or waterbars) where overflow runoff from water trucks or storage tanks may enter the stream, - Check all water-drafting vehicles daily and repair as necessary to prevent leaks of petroleum products from entering RCAs. Water-drafting vehicles shall contain petroleum-absorbent pads, which are placed under vehicles before drafting. Water-drafting vehicles shall contain petroleum spill kits. Dispose of absorbent pads according to the Hazardous Response Plan.	
Rock Borrow Pits/Quarries - Limit the area of disturbance to the minimum necessary for efficient operations. - Rehabilitate and stabilize sites after operations are complete to minimize risk of off-site movement. - Where appropriate, install temporary barriers between the extraction area and surface waters to prevent sedimentation. - Obliterate or decommission temporary access roads unless other treatment is required. - Maintain system roads to quarries or borrow pits.	**Regional BMPs** 2-12 Aggregate Borrow Areas 2-13 Erosion Control Plans (roads and other activities) **National Core BMPs** Min-5 Mineral Materials Resource Sites **Locations**: all borrow pits.
Slope and Soil Moisture Limitations - See Soils report for specific slope limitations for operation of ground-based equipment. - See Soils report for wet weather operating restrictions.	**Regional BMPs** 5-2 Slope Limitations for Mechanical Equipment Operation 5-6 Soil Moisture Limitations for Mechanical Equipment Operations **National Core BMPs** Veg-2 Erosion Prevention and Control Veg-4 Ground-Based Skidding and Yarding Operations **Locations**: all ground-based equipment units.
Servicing, Refueling, and Cleaning Equipment and Parking/Staging Areas - Allow temporary refueling and servicing only at approved sites located outside of RCAs. - Rehabilitate temporary staging, parking, and refueling/servicing areas immediately following use. - A Spill Prevention and Containment and Counter Measures (SPCC) plan is required where total oil products on site in above-ground storage tanks exceed 1320 gallons or where a single container exceeds 660 gallons. Review and ensure spill plans are up-to-date. - Report spills and initiate appropriate clean-up action in accordance with applicable State and Federal laws, rules and regulations. The Forest hazardous materials coordinator's name and phone number shall be available to Forest Service personnel who administer or manage activities utilizing petroleum-powered equipment. - Remove contaminated soil and other material from NFS lands and dispose of this material in a manner according to controlling regulations. - Install temporary wash sites only in areas where the water and residue can be adequately collected and either filtered on site or conveyed to an appropriate wastewater treatment facility.	**Regional BMPs** 2-10 Parking and Staging Areas 2-11 Equipment Refueling and Servicing **National Core BMPs** Road-9 Parking and Staging Areas Road-10 Equipment Refueling and Servicing Fac-7 Vehicle and Equipment Wash Water **Forest Plan S&Gs** 193 (RCO 1) **Locations**: designated temporary refueling, servicing and cleaning sites and parking/staging areas.
Application of Registered Borate Compound - Do not apply fungicide within 10 feet of surface water, when rain is falling, or when rain is likely that day (i.e., National Weather Service forecasts 50% or greater chance).	**Regional BMPs** 5-7 Pesticide Use Planning Process 5-8 Pesticide Application According to Label Directions and Applicable Legal

Management Requirements	BMPs/Forest Plan[1]/Locations
- Follow all State and Federal rules and regulations as they apply to pesticides.	Requirements 5-11 Cleaning and Disposal of Pesticide Containers and Equipment 5-12 Streamside Wet Area Protection During Pesticide Spraying **National Core BMPs** Chem-1 Chemical Use Planning Chem-2 Follow Label Directions Chem-3 Chemical Use Near Waterbodies Chem-5 Chemical Handling and Disposal **Forest Plan S&Gs** 193 (RCO 1) **Locations**: portions of units with applications in RCAs.
Burn Piles - Place burn piles a minimum of 50 feet away from perennial and intermittent streams and SAFs and 25 feet from ephemeral streams. Locate piles outside areas that may receive runoff from roads. Avoid disturbance to obligate riparian vegetation. - Do not dozer pile in sensitive watershed areas (areas where mastication or drop and lop have been prescribed). Grapple piling is allowed in these areas, but is subject to the mechanized equipment restrictions for RCAs. When grapple piling in sensitive watershed areas, consult a hydrologist or soil scientist if less than 70% ground cover would be retained. - Minimize effects on soil, water quality, and riparian resources by appropriately planning pile size, fuel piece size limits, spacing, and burn prescriptions in compliance with state or local laws and regulations if no practical alternatives for slash disposal in the RCA are available.	**Regional BMPs** 6-2 Consideration of Water Quality in Formulating Fire Prescriptions 6-3 Protection of Water Quality from Prescribed Burning Effects **National Core BMPs** Fire-1 Wildland Fire Management Planning Fire-2 Use of Prescribed Fire **Forest Plan S&Gs** 194 (RCO 4) **Locations**: all pile burning areas, sensitive watershed areas.
Cumulative Watershed Effects (CWE) Analysis - CWE analysis will be conducted for the project.	**Regional BMPs** 7-8 Cumulative Off-Site Watershed Effects **Locations**: All activities within the project watersheds will be analyzed
Water Quality Monitoring - Conduct implementation and effectiveness monitoring using the Best Management Practices Evaluation Program (BMPEP) (USDA 2002) and the National Core Monitoring Protocols (FS-990b) (USDA 2012a). - Conduct project-level in-channel monitoring as required in the Water Quality Management Handbook (USDA 2011a).	**Regional BMPs** 7-6 Water Quality Monitoring **Locations**: Monitoring locations will be detailed in a project monitoring plan.

[1] Forest Plan S&Gs indicate page number from Forest Plan Direction (USDA 2010a).

B. Treatments

This Appendix lists the salvage harvest units, and the fuel, watershed and road treatments implemented in Modified Alternative 4. EIS Chapter 2.01 describes the specific actions.

B.01 SALVAGE HARVEST, FUELS AND WATERSHED TREATMENTS

For each treatment unit, Table B.01-1 lists the primary objectives as described in EIS Chapter 2.01 and the units (and acres) that will be salvage harvested with the associated harvest system. Fuel and watershed treatments for all acres whether salvage harvested or not are also listed below.

Primary Objectives

1. **Economic Value**: Capture the economic value of hazard trees and dead trees which pays for their removal from the forest and potentially for other future restoration treatments.
2. **Public and Worker Safety**: Remove dead and dying hazard trees adjacent to Forest Roads and project access areas. This primary objective also includes the health and safety of workers and permittees during range fence installation and maintenance.
3. **Fuel Reduction**: Reduce fuels to provide for future forest resiliency and firefighting safety and success. Additional treatments in SPLATS and Defense Zones.
4. **Enhance Hydrologic Function**: Improve road infrastructure to enhance hydrologic function of roads. This only applies to roads so it will not be displayed in Table B.01-1 which displays unit acres.
5. **Enhance Wildlife Habitat**: Retain specific old forest components (large snags and down logs) and/or remove material to improve wildlife habitat.
    a. **Deer Habitat Improvement**: Removal of dead trees (commercial and non-commercial) for movement and access, and to achieve desired forage/cover ratios
    b. **Snag Retention**
6. **Research**: Utilize the unique scale and intensity of the Rim Fire to answer questions and provide more information on a wide range of research topics.

Fuel Treatments

Fuel treatments are planned on all acres whether salvage is harvested or not. Treatments include biomass removal and/or machine piling on units that meet ground based equipment guidelines. Jackpot burning is proposed on steeper ground (skyline and helicopter units).

Watershed Treatments

As described in EIS Chapter 2.01, watershed treatments are implemented in areas identified as watershed sensitive areas.

Table B.01-1 Harvest, Fuel and Watershed Treatments in Modified Alternative 4

Unit	Acres	Primary Objectives	Harvest Treatments		Fuel Reduction			Watershed Treatments	
			System	Salvage	Biomass	Pile	Jackpot	Mastication	Drop/Lop
A05C	85	1,2,5b					85		
A08A	111	1,2,5b				111			
A08C	18	1,5b					18		
A09	81	1,5b					81		
A14	8	1,3,5b				8			
A14X	2	1,3,5b,6				2			
A15	22	1,3,5b,6					22		
AA01	34	1,2,3,5b				34			
AA03	28	1,2,3,5b				28			
AA04	28	1,3,5b					28		
AA07	10	1,2,3,5b				10			
AA08	19	1,2,3,5b				19			
AA09	66	1,3,5b					66		
AA11	12	1,2					12		
AA12	4	1,2,3				4			
AA13	12	1,2					12		
B02	63	1,2				63			
B03	18	1				18			
B21	4	1				4			
B22	8	1				8			
B22X	19	1,5b,6				19			
B23	100	1,2				100			
B24X	87	1,5b,6					87		
B25X	21	1,2,5b,6				21			
B32	62	1,2				62			
C02	86	1,5b					86		
C03	39	1,2,3,5b				39			
C04X	14	1,2,3,5b,6				14			
C05	10	1,3,5b				10			
C06	4	1,2,3,5b				4			
D01B	1	1,5b				1			
D01C	23	1,2				23			
D01D	12	1,2				12			
D01E	11	1				11			
D03	26	1,5b				26			
D04B	345	1,2,5b				345			
D05	22	1,5b				22			
D06	16	1,2,5b				16			
D08	42	1,2,5b				42			
D09	37	1,2,5b				37			
D11	107	1,2,3				107			
D12	408	1,2,3				408			
D13	150	2,3				150			
E03A	174	1,2				174			
E03B	190	1,2				190			
E04	72	1,2,3	G	72	72				

Unit	Acres	Primary Objectives	Harvest Treatments		Fuel Reduction			Watershed Treatments	
			System	Salvage	Biomass	Pile	Jackpot	Mastication	Drop/Lop
E05	10	1	G	10		10			
F01	196	1,5b,6				196			
F02A	604	1,2,5b,6	G	604		280		323	1
F02B	34	1,2,5b	G	34		15			19
F03	58	1,5b					58		
F11	412	2,3,5b	G	412		287			125
F12	121	1,2,5b	G	121		3			118
F13	177	1,5b				177			
F14	135	1,2,5b	G	135		98			37
F15	33	1,2,5b					23		10
F16	69	1,2,5b	G	69		69			
F17	12	1,2,5b					12		
F18	39	1,2,5b	G	39		22			17
F19	12	1,2,5b	G	12		6			6
F20	145	1,2,5b					145		
F21	22	1,5b	G	22			22		
F22A	7	1,5b	G	7		7			
F22B	6	1,5b	G	6		6			
F23A	16	1,5b,6	G	16		16			
F23B	10	1,2,5b,6	G	10		10			
F23C	1	1,5b	G	1		1			
F23D	30	1,5b	G	30		30			
G01	66	1,2,5b				66			
G01X	40	1,2,5b,6				40			
G02X	5	1,2,5b,6				5			
G03A	131	1,2,5b				131			
G03B	119	1,2,5b				114			5
G04	24	1,2,5b				24			
G05	23	1,2,5b				23			
G06	23	1,2,5b,6				23			
G07	2	1,5b,6				2			
G08	24	1,2,5b				24			
G08X	29	1,5b,6				29			
G09	43	1,2,5b,6				43			
G10	6	1,5b,6					6		
G11A	5	1,2,5b,6					5		
G11B	7	1,2,5b,6					7		
G11C	15	1,2,5b,6				15			
G12	10	1,2,5b,6					10		
G13A	16	1,2,5b					16		
G13B	5	1,2,5b					5		
G14A	6	1,5b,6					6		
G14B	6	1,2,5b,6					6		
G15	95	1,2,5b				95			
G25	60	1,2,5b,6				60			
G26	24	1,2,5b,6				24			
G35	3	1,2				3			
H01	4	1,2,3,5b				4			

Unit	Acres	Primary Objectives	Harvest Treatments		Fuel Reduction			Watershed Treatments	
			System	Salvage	Biomass	Pile	Jackpot	Mastication	Drop/Lop
H02	9	1,3,5b				9			
H06	34	1,2,5b				34			
H09	21	1,2,5b				21			
H11	27	1,2,5b				15			12
H11X	17	1,2,5b,6				11			6
H12	6	1,2,5b				6			
H12X	31	1,2,5b,6				31			
H13A	54	1,2,5b				54			
H13AX	52	1,2,5b,6				52			
H13B	13	1,2,5b				13			
H13BX	52	1,2,5b,6				52			
K01	11	1,2				11			
K02	132	1,2				132			
L01	39	1,2,5b					39		
L02A	258	1,2,3,5b	G	258	258				
L02AX	5	1,2,3,5b,6	G	5	5				
L02B	176	1,2,3,5b	G	176		176			
L02BX	148	1,2,3,5b,6	G	148		115		33	
L02C	610	1,2,5b	G	610		138		418	54
L02CX	148	1,2,5b,6	G	148		74		47	27
L02D	257	1,2,5b	G	257		218			39
L02E	62	1,2,5b					62		
L02F	185	1,2,3,5b	G	185		119		66	
L03	31	1,2,5a,5b	G	31	31				
L04	79	1,2,5b	G	79	25	54			
L05AX	6	1,2,5b,6					6		
L05BX	17	1,5b,6					17		
L07	5	1,2,5a,5b	G	5	5				
L201	92	5a,5b			92				
L202	142	2,5a,5b	G	100	42	79			21
L203	695	2,5a,5b	G	17	250	445			
L204	1,519	2,5a,5b	G	54	340	1,179			
L205	756	2,3,5a,5b			756				
L206	81	2,5a,5b	G	1	15	66			
M01	701	1,2,5b,6	G	701		663		35	3
M02A	141	1,2,3,5b,6	G	141	141				
M02C	30	1,5b,6	G	30		30			
M04A	260	1,2,5b	G	260		260			
M04B	13	1,2,5b	G	13		13			
M04C	15	2,5b	G	15		15			
M05A	34	1,3,5b	H	34			34		
M05B	120	1,2,3,5b	H	120			120		
M05C	24	2,3,5b	G	24	24				
M05D	76	1,2,3,5b	G	76	53			23	
M05E	21	1,2,3,5b	G	21	21				
M05F	39	1,3,5b	G	39	39				
M05G	11	1,3,5b	G	11	11				
M06	97	1,2,5b	G	97		68			29

Unit	Acres	Primary Objectives	Harvest Treatments		Fuel Reduction			Watershed Treatments	
			System	Salvage	Biomass	Pile	Jackpot	Mastication	Drop/Lop
M07	21	1,2,5b	G	21		21			
M08A	98	1,2,5b	G	98		62			36
M08B	29	1,2,5b	G	29		29			
M08C	11	1,2,5b	G	11		11			
M08D	27	1,2,5b	G	27		27			
M08E	8	1,5b	G	8		8			
M09	224	1,2,5b,6					224		
M10	71	1,2,5b	G	71		71			
M12	12	1,2,5b	G	12		12			
M13	10	1,2,5b					10		
M15	28	1,2,5b	G	28		28			
M16A	10	1,2,5b	G	10		10			
M16B	86	1,2,3,5b	G	86		57			29
M18	58	1,2,3,5b	G	58		58			
M19	27	1,2,5b	G	27		27			
M20	15	1,2	G	15					15
M201	74	2,5a,5b	G	31	43	31			
M202A	117	1,2,5a,5b	G	6	111	6			
M202B	21	1,2,5a,5b				21			
M203	63	1,2,5a,5b	G	1	62	1			
M204	282	1,2,5a,5b	G	7	275	7			
N01A	37	1,2,5b	G	37		14			23
N01B	13	1	G	13		13			
N01C	225	1,2,5b	G	225		122			103
N01D	14	1,5b	G	14		1			13
N01E	71	1,5b	G	71		27		32	12
N01F	2	1,5b	G	2		2			
N01G	5	1,5b	G	5		5			
N01H	49	1,5b	G	49		21		28	
N01I	28	1,5b	G	28		2		26	
N01J	21	1,2,5b	G	21		12		9	
N02A	24	1,2	G	24		7			17
N02B	5	1,2	G	5		5			
N03	26	1,2,5b				26			
O03	46	1,5b					46		
O06	33	1,5b					33		
O07	48	1					48		
O08	27	1				27			
O09	10	1				10			
O10A	14	1,3				14			
O10B	6	1				6			
O11A	27	1				27			
O11B	39	1,2				39			
O11C	15	1,3				15			
O201A	156	2,5a,5b				156			
O201B	121	2,5a,5b				121			
P201	185	1,5a,5b					185		
Q06	19	1,2,5b				19			

Unit	Acres	Primary Objectives	Harvest Treatments		Fuel Reduction			Watershed Treatments	
			System	Salvage	Biomass	Pile	Jackpot	Mastication	Drop/Lop
Q07	13	1,2,5b				13			
Q13	81	1,5b	G	81		81			
Q14A	395	1,2,5b,6	G	395		309			86
Q14B	146	1,5b,6	G	146		146			
Q15	17	1,2,5b					17		
Q16	8	1,5b,6				8			
R01B	11	1,2,3,5b	G	11		11			
R04A	52	1,2,3,5b,6	G	52		52			
R04B	41	1,2,3	G	41		33			8
R06A	12	1,3				12			
R06B	21	1				21			
R07A	98	1,2					98		
R07B	19	1,2				19			
R12	8	1,5b	G	8		8			
R12X	55	1,5b,6	G	55		55			
R15	66	1,3,5b	G	66		66			
R16	98	1,2,5b	G	98		98			
R17X	72	1,2,5b,6	G	72		72			
R18	83	1,2,5b					83		
R18X	17	1,5b,6					17		
R19A	52	1,3,5b,6	G	52		52			
R19B	12	1,2,3,5b,6	G	12		12			
R19D	91	1,2,3,5b,6	G	91		91			
R19DX	24	1,2,5b,6	G	24		24			
R19E	4	1,2,5b,6	G	4		4			
R19F	11	1,2,5b,6	G	11		11			
R20	50	1,5b,6					50		
R22	28	1,2,3,5b				28			
R23	13	1,2					13		
R24A	41	1,2,5b				41			
R25X	34	1,2,5b,6				34			
R31	120	1,2,3,5b	G	120		120			
R31X	67	1,2,3,5b,6				67			
R32	31	1,2,6	G	31		31			
R33X	12	1,2,3,5b,6					12		
R35A	10	1,2,3,5b					10		
R35B	16	1,2,3,5b	G	16		16			
R36	12	1,2,3,5b	G	12		12			
R37	25	1,2,5b	G	25		25			
R38	20	1,2,3	G	20		20			
R39	3	1,2,3,5b	G	3		3			
R40A	32	2,3,5b	G	32		32			
R40B	52	2,3,5b	G	52		52			
S01	53	1,5b	G	53		53			
S02	135	1,2,5b	G	135		135			
S03	168	1,2,5b	G	168		168			
S04	266	1,2,5b	G	266		237		20	9
S05B	7	1,2,5b				7			

Unit	Acres	Primary Objectives	Harvest Treatments		Fuel Reduction			Watershed Treatments	
			System	Salvage	Biomass	Pile	Jackpot	Mastication	Drop/Lop
S06	28	1,3,5b	G	28		28			
S08	81	1,2,5b	S	81			81		
S10	9	1,3,5b					9		
S11	24	1,3	G	24		24			
T01	19	1,3	G	19		19			
T02	32	1,2,3	G	32		32			
T03	29	1,2	S	20			29		
T04A	235	1,2,3	G	235		235			
T04B	876	1,2,3	G	876		642			234
T04C	101	1,3	G	101		101			
T04D	9	1,3	G	9		9			
T20	9	1,3	G	9		9			
T21B	18	1,3,5b	G	18		18			
T22	18	1,2,5b	G	18		18			
T23	28	1,2,5b	G	28		28			
T23X	54	1,2,5b,6	G	54		54			
T24	154	1,2,3,5b	G	154		154			
T25	6	1,2					6		
T25X	26	1,2,5b,6					26		
T26	15	1,2					15		
T27A	926	1,2,3,5b	G	926		778			148
T27AX	150	1,2,3,5b,6	G	150		103			47
T27B	450	1,2,3	G	450		349		90	11
T27BX	320	1,2,3,6				320			
T27C	97	1,2,3	G	97		97			
U01A	3	1,2	G	3		3			
U01B	26	1,2	G	26		26			
U01C	12	1	G	12		12			
U01D	617	1,2,3,5b,6	G	617		545			72
U01DX	33	1,2,5b,6	G	33		33			
U02	56	1,2	G	56		56			
U03	320	1,2,3	G	320		320			
V01	20	1	G	20		20			
V02	16	1,2	G	16		16			
V03	25	1,2	G	25		14			11
V04A	2	1,2	G	2		2			
V04B	3	1,2	G	3		3			
V05B	6	1				6			
V06	4	1				4			
V10	50	1,2,3	G	50		50			
V12A	9	1,3	G	9		9			
V12B	16	1,2,3	G	16		16			
V13	119	1,2,3	G	119		119			
V13X	69	1,2,3,5b,6	G	69		69			
V14A	15	1,2,3	G	15		15			
V14B	321	1,2,3	G	321		279			42
V14C	70	1,2,3,5b	G	70		70			
V15	26	1,2	S	26			26		

Unit	Acres	Primary Objectives	Harvest Treatments		Fuel Reduction			Watershed Treatments	
			System	Salvage	Biomass	Pile	Jackpot	Mastication	Drop/Lop
W01	51	1,2	G	51		51			
W02	226	1,2	G	226		226			
W03	21	1,2,3				21			
W04	74	1,2	G	74		74			
W05A	3	1	G	3		3			
W05B	5	1	G	5					5
W06A	13	1	G	13		13			
W06B	7	1	G	7		7			
X01A	8	1,3	G	8		8			
X01B	3	1,3	G	3		3			
X02	43	1,2,3	H	43			43		
X03	58	1,2,3,5b	S	58			58		
X04	7	1,2,3				7			
X05	33	1,2,3	H	33			33		
X06	60	1,2,3	H	60			60		
X07	43	1,2				43			
X08	20	1					20		
X09	5	1,3	G	5		5			
X10	8	1,2,3,5b	H	8			8		
X100	22	1,2,5b				22			
X101	31	1,2				31			
X102	23	1,2				23			
X103	28	1,2,3				28			
X104	72	1,2,3,5b				72			
X105	14	1,2				14			
X106	18	1,2				18			
X107	70	1,2,3	G	70		70			
X108	183	1,2,3,5b				183			
X109A	28	1,2,5b				28			
X109B	8	1,2,5b				8			
X109C	18	1,2,3,5b				18			
X109D	13	1,2,3,5b				13			
X109E	9	1,2,5b				9			
X110	18	1	G	18		18			
X111X	32	1,2,5b,6	G	32		32			
X112	14	1,2	G	14		14			
X114X	18	1,2,5b,6	G	18		18			
X115	150	1,2,3,5b	G	150		150			
X116	110	1,2,3,5b	G	110		110			
X117	9	1,2,5b	G	9		9			
X118	7	1,2	G	7		7			
X118X	156	1,2,5b,6	G	156		156			
X119X	113	1,2,5b,6	G	113		113			
X12	23	1,2,3,5b					23		
X120	24	1,3,5b					24		
X13	19	1,2,3,5b				19			
X15	116	1,2,3,5b				116			
X16	16	1,2,5b					16		

Unit	Acres	Primary Objectives	Harvest Treatments		Fuel Reduction			Watershed Treatments	
			System	Salvage	Biomass	Pile	Jackpot	Mastication	Drop/Lop
X17	51	1,2,3,5b,6					51		
X18	19	1,2,3,5b,6				19			
X19	4	1,2,3,5b,6				4			
X22	52	1,2,3,5b	S	52			52		
X23	353	1,2,3,5b	H	353			353		
X24	76	1,2,5b					76		
X25	253	1,2,5b,6					253		
X26	75	1,2,3,5b				75			
X27	34	1,2,5b					34		
X40	8	1,2				8			
X41	21	1,2,3				21			
Y01A	36	1,3	G	36		36			
Y01B	18	1,2,3	G	18		18			
Y01C	3	1	G	3		3			
Y01D	22	1,2,3	G	22		22			

Harvest System: G=Ground based equipment; H=Helicopter; S=Skyline

B.02 ROAD TREATMENTS

This decision includes road treatments such as maintenance and reconstruction of existing roads, and development of new temporary roads. Table B.02-1 displays the route number, status, miles, Motor Vehicle Use Map (MVUM) and road treatments in the decision. The MVUM identifies public motor vehicle use by Vehicle Class (4 wheel drive, All Vehicles, Highway Legal Only, etc.) and whether the season of use is closed, open year round or seasonal (open April 15 through December 15).

Table B.02-1 Road Treatments in Modified Alternative 4

Route	Status	miles	MVUM	Modified Alternative 4
01N01	Existing	8.53	ALL, year round	Maintain
01N01	Existing	0.82	ALL, year round	Reconstruct
01N01A	Existing	0.50	ALL, seasonal	Reconstruct
01N01E	Existing	0.45	Closed	Reconstruct
01N01H	Existing	0.66	ALL, year round	Maintain
01N01K	Existing	0.60	ALL, year round	Maintain
01N01L	Existing	0.12	ALL, seasonal	Reconstruct
01N02	Existing	1.47	ALL, year round	Maintain
01N02	Existing	2.67	Closed	Maintain
01N02B	Existing	0.64	Closed	Maintain
01N02Y	Existing	1.49	ALL, seasonal	Maintain
01N04	Existing	0.38	HLO, seasonal	Reconstruct
01N04B	Existing	0.63	ALL, seasonal	Maintain
01N04D	Existing	0.53	Closed	Reconstruct
01N04Y	Existing	0.50	ALL, seasonal	Reconstruct
01N04Y	Existing	0.25	Closed	Reconstruct
01N05	Existing	0.14	ALL, seasonal	Maintain
01N05	Existing	2.21	ALL, seasonal	Reconstruct
01N07C	Existing	0.60	ALL, seasonal	Maintain
01N07Y	Existing	1.57	HLO, seasonal	Reconstruct
01N09	Existing	0.83	Closed	Maintain
01N09	Existing	0.57	Closed	Reconstruct

Route	Status	miles	MVUM	Modified Alternative 4
01N09	Existing	2.44	Closed	Reconstruct
01N09Y	Existing	0.36	ALL, seasonal	Maintain
01N10A	Existing	0.53	HLO, seasonal	Reconstruct
01N11	Existing	2.06	ALL, year round	Maintain
01N11Y	Existing	0.13	HLO, seasonal	Maintain
01N11Y	Existing	2.30	HLO, seasonal	Reconstruct
01N12	Existing	0.54	ALL, seasonal	Maintain
01N12	Existing	0.49	ALL, seasonal	Reconstruct
01N12Y	Existing	0.28	Closed	Reconstruct
01N13	Existing	2.05	ALL, year round	Maintain
01N13A	Existing	0.38	ALL, year round	Maintain
01N13B	Existing	0.97	ALL, year round	Maintain
01N14	Existing	3.76	HLO, seasonal	Reconstruct
01N14A	Existing	0.82	HLO, seasonal	Maintain
01N14F	Existing	0.44	HLO, seasonal	Maintain
01N14G	Existing	0.13	Closed	Maintain
01N15	Existing	1.23	Closed	Reconstruct
01N15Y	Existing	0.53	Closed	Maintain
01N16	Existing	0.03	ALL, year round	Maintain
01N17	Existing	0.21	ALL, year round	Maintain
01N17	Existing	2.15	ALL, year round	Maintain
01N17A	Existing	0.10	ALL, year round	Maintain
01N18	Existing	1.37	ALL, year round	Maintain
01N18A	Existing	0.17	ALL, year round	Maintain
01N19	Existing	1.33	ALL, year round	Maintain
01N19	Existing	0.12	Closed	Maintain
01N24	Existing	2.24	ALL, year round	Maintain
01N24	Existing	1.47	ALL, year round	Reconstruct
01N24A	Existing	0.10	ALL, year round	Maintain
01N24B	Existing	0.34	ALL, year round	Maintain
01N24C	Existing	1.18	ALL, year round	Maintain
01N25	Existing	0.34	ALL, year round	Maintain
01N25A	Existing	0.11	ALL, seasonal	Maintain
01N25B	Existing	0.33	ALL, seasonal	Maintain
01N25Y	Existing	0.73	ALL, seasonal	Reconstruct
01N26	Existing	2.79	ALL, seasonal	Reconstruct
01N26	Existing	1.07	ALL, seasonal	Reconstruct
01N26A	Existing	0.26	ALL, seasonal	Reconstruct
01N26B	Existing	0.41	ALL, seasonal	Reconstruct
01N26C	Existing	0.31	ALL, seasonal	Reconstruct
01N26D	Existing	0.25	ALL, seasonal	Reconstruct
01N26YA	Existing	0.35	Closed	Maintain
01N27	Existing	0.82	ALL, year round	Maintain
01N27B	Existing	0.45	ALL, year round	Maintain
01N28	Existing	0.39	ALL, seasonal	Reconstruct
01N28A	Existing	0.12	ALL, seasonal	Reconstruct
01N30	Existing	0.71	ALL, seasonal	Maintain
01N30	Existing	2.10	ALL, seasonal	Reconstruct
01N30A	Existing	0.05	Closed	Reconstruct
01N31Y	Existing	0.39	ALL, seasonal	Maintain
01N31Y	Existing	0.54	ALL, seasonal	Reconstruct

Route	Status	miles	MVUM	Modified Alternative 4
01N31YA	Existing	0.34	ALL, seasonal	Reconstruct
01N31YB	Existing	0.39	Closed	Reconstruct
01N32	Existing	0.27	ALL, seasonal	Reconstruct
01N32	Existing	0.65	ALL, seasonal	Reconstruct
01N32A	Existing	0.12	ALL, seasonal	Reconstruct
01N32Y	Existing	0.12	Closed	Temporary Road
01N34	Existing	0.40	Closed	Maintain
01N34C	Existing	0.22	Closed	Maintain
01N34Y	Existing	1.08	ALL, year round	Maintain
01N35	Existing	0.93	ALL, year round	Maintain
01N36	Existing	0.71	ALL, seasonal	Reconstruct
01N36A	Existing	0.21	ALL, seasonal	Maintain
01N37	Existing	1.43	Closed (mitigation)	Reconstruct
01N38	Existing	0.26	ALL, year round	Maintain
01N38	Existing	0.19	Closed	Maintain
01N38A	Existing	0.03	Closed	Maintain
01N39	Existing	0.89	ALL, year round	Maintain
01N39Y	Existing	0.12	Closed	Reconstruct
01N39Y	Existing	0.56	Closed	Reconstruct
01N40	Existing	0.22	ALL, year round	Maintain
01N40Y	Existing	1.50	HLO, seasonal	Reconstruct
01N40Y	Existing	0.41	HLO, seasonal	Maintain
01N41	Existing	0.27	ALL, seasonal	Maintain
01N42Y	Existing	1.14	ALL, seasonal	Reconstruct
01N42YC	Existing	0.28	ALL, seasonal	Reconstruct
01N43	Existing	5.94	ALL, year round	Maintain
01N43A	Existing	0.82	ALL, year round	Maintain
01N43B	Existing	0.63	ALL, year round	Maintain
01N43C	Existing	0.53	ALL, year round	Maintain
01N43D	Existing	0.21	ALL, year round	Maintain
01N43D	Existing	0.05	Closed	Maintain
01N44	Existing	0.52	ALL, year round	Maintain
01N46	Existing	0.91	ALL, year round	Reconstruct
01N48	Existing	0.83	ALL, year round	Maintain
01N48A	Existing	0.57	ALL, year round	Maintain
01N48B	Existing	0.19	ALL, year round	Maintain
01N49	Existing	1.31	ALL, seasonal	Maintain
01N49	Existing	0.85	ALL, year round	Maintain
01N49	Existing	0.15	ALL, year round	Reconstruct
01N49A	Existing	0.22	ALL, year round	Maintain
01N49B	Existing	0.38	ALL, seasonal	Maintain
01N50	Existing	0.03	ALL, seasonal	Maintain
01N50	Existing	2.95	ALL, seasonal	Reconstruct
01N50A	Existing	0.44	ALL, seasonal	Reconstruct
01N50C	Existing	1.18	ALL, seasonal	Reconstruct
01N51	Existing	0.65	ALL, year round	Maintain
01N56	Existing	0.15	ALL, seasonal	Maintain
01N56	Existing	3.09	ALL, seasonal	Reconstruct
01N56A	Existing	0.65	ALL, seasonal	Maintain
01N56A	Existing	0.52	ALL, seasonal	Reconstruct
01N57	Existing	2.18	ALL, seasonal	Maintain

Route	Status	miles	MVUM	Modified Alternative 4
01N58	Existing	1.59	ALL, seasonal	Maintain
01N58	Existing	0.29	ALL, seasonal	Reconstruct
01N58A	Existing	0.39	Closed	Maintain
01N58B	Existing	0.22	ALL, seasonal	Maintain
01N59	Existing	0.19	ALL, seasonal	Reconstruct
01N60	Existing	0.76	HLO, seasonal	Reconstruct
01N60A	Existing	0.35	HLO, seasonal	Reconstruct
01N61	Existing	1.78	ALL, seasonal	Reconstruct
01N67	Existing	1.06	ALL, seasonal	Maintain
01N72	Existing	0.68	Closed	Reconstruct
01N72	Existing	0.43	Closed	Reconstruct
01N74	Existing	4.32	ALL, seasonal	Reconstruct
01N74A	Existing	0.46	Closed	Reconstruct
01N74C	Existing	0.33	ALL, seasonal	Reconstruct
01N75	Existing	0.27	Closed	Reconstruct
01N76	Existing	2.38	HLO, seasonal	Reconstruct
01N77	Existing	0.12	ALL, seasonal	Maintain
01N78	Existing	0.38	ALL, seasonal	Maintain
01N79	Existing	3.35	ALL, seasonal	Reconstruct
01N79A	Existing	0.51	ALL, seasonal	Reconstruct
01N79B	Existing	0.38	ALL, seasonal	Maintain
01N79B	Existing	0.35	ALL, seasonal	Reconstruct
01N80	Existing	1.45	ALL, seasonal	Reconstruct
01N80A	Existing	0.34	Closed	Reconstruct
01N82	Existing	0.30	ALL, seasonal	Reconstruct
01N83	Existing	0.02	ALL, seasonal	Maintain
01N83	Existing	1.93	ALL, seasonal	Reconstruct
01N83	Existing	0.11	Closed	Reconstruct
01N86	Existing	1.07	Closed	Reconstruct
01N88	Existing	0.63	HLO, seasonal	Reconstruct
01N89	Existing	0.52	ALL, seasonal	Reconstruct
01N91	Existing	0.28	Closed	Reconstruct
01N94	Existing	0.26	ALL, seasonal	Maintain
01N94	Existing	0.29	ALL, seasonal	Reconstruct
01N94A	Existing	0.40	ALL, seasonal	Reconstruct
01N96	Existing	4.94	ALL, seasonal	Reconstruct
01N96E	Existing	0.53	ALL, seasonal	Reconstruct
01N97	Existing	5.01	HLO, seasonal	Reconstruct
01N97C	Existing	0.11	Closed	Reconstruct
01S01	Existing	0.14	4WD, seasonal	Reconstruct
01S01	Existing	0.62	Closed	Reconstruct
01S01Y	Existing	0.07	HLO, seasonal	Reconstruct
01S01Y	Existing	0.59	Closed	Reconstruct
01S01YA	Existing	0.17	Closed	Reconstruct
01S01YB	Existing	0.59	HLO, seasonal	Reconstruct
01S02Y	Existing	0.15	Closed	Reconstruct
01S03	Existing	0.45	HLO, year round	Reconstruct
01S03B	Existing	1.03	Closed	Reconstruct
01S04	Existing	2.96	HLO, seasonal	Reconstruct
01S04A	Existing	0.85	ALL, seasonal	Reconstruct
01S05	Existing	4.00	ALL, seasonal	Reconstruct

Route	Status	miles	MVUM	Modified Alternative 4
01S05A	Existing	0.65	Closed	Reconstruct
01S06	Existing	2.69	Closed	Maintain
01S06B	Existing	0.10	HLO, year round	Maintain
01S08	Existing	1.46	ALL, seasonal	Reconstruct
01S08Y	Existing	0.95	ALL, seasonal	Reconstruct
01S08YA	Existing	0.11	Closed	Reconstruct
01S09	Existing	2.03	ALL, seasonal	Reconstruct
01S11	Existing	0.29	ALL, seasonal	Maintain
01S11	Existing	0.71	ALL, seasonal	Reconstruct
01S11	Existing	2.12	ALL, seasonal	Reconstruct
01S11A	Existing	0.56	ALL, seasonal	Maintain
01S11A	Existing	0.31	ALL, seasonal	Maintain
01S11F	Existing	0.58	ALL, seasonal	Maintain
01S11Y	Existing	1.45	Closed	Reconstruct
01S12G	Existing	0.36	ALL, seasonal	Maintain
01S12G	Existing	0.41	ALL, seasonal	Reconstruct
01S12H	Existing	0.58	ALL, seasonal	Maintain
01S12H	Existing	0.19	ALL, seasonal	Maintain
01S13	Existing	15.93	ALL, seasonal	Reconstruct
01S13C	Existing	2.00	ALL, seasonal	Reconstruct
01S13Y	Existing	1.22	HLO, seasonal	Reconstruct
01S14	Existing	5.91	ALL, seasonal	Reconstruct
01S14M	Existing	0.43	ALL, seasonal	Reconstruct
01S15Y	Existing	3.06	Closed	Reconstruct
01S15YA	Existing	1.36	Closed	Reconstruct
01S15YB	Existing	0.18	Closed	Reconstruct
01S16Y	Existing	0.70	HLO, seasonal	Maintain
01S16Y	Existing	1.17	HLO, seasonal	Reconstruct
01S18Y	Existing	0.67	Closed	Reconstruct
01S19	Existing	0.54	ALL, seasonal	Maintain
01S19	Existing	2.15	ALL, seasonal	Reconstruct
01S19A	Existing	0.99	ALL, seasonal	Reconstruct
01S19B	Existing	0.01	Closed	Reconstruct
01S19B	Existing	0.52	Closed	Reconstruct
01S19C	Existing	0.24	ALL, seasonal	Maintain
01S19Y	Existing	0.21	HLO, seasonal	Maintain
01S19Y	Existing	0.26	HLO, seasonal	Maintain
01S20Y	Existing	0.22	HLO, seasonal	Maintain
01S20Y	Existing	0.43	HLO, seasonal	Reconstruct
01S21Y	Existing	0.88	ALL, seasonal	Maintain
01S23	Existing	3.03	ALL, seasonal	Maintain
01S23D	Existing	0.35	ALL, seasonal	Maintain
01S23E	Existing	0.23	Closed	Maintain
01S23H	Existing	0.08	Closed	Maintain
01S23X	Existing	0.57	Closed	Maintain
01S23Y	Existing	0.66	HLO, year round	Maintain
01S24	Existing	0.51	ALL, seasonal	Reconstruct
01S24	Existing	2.85	ALL, seasonal	Reconstruct
01S24	Existing	0.03	Closed	Reconstruct
01S24A	Existing	1.08	ALL, seasonal	Reconstruct
01S25	Existing	0.63	ALL, seasonal	Maintain

Route	Status	miles	MVUM	Modified Alternative 4
01S25	Existing	2.26	ALL, seasonal	Reconstruct
01S25A	Existing	2.37	ALL, seasonal	Reconstruct
01S25C	Existing	0.15	ALL, seasonal	Maintain
01S25C	Existing	0.48	ALL, seasonal	Reconstruct
01S25D	Existing	0.52	ALL, seasonal	Maintain
01S25E	Existing	0.24	ALL, seasonal	Maintain
01S25F	Existing	0.52	ALL, seasonal	Reconstruct
01S25Y	Existing	0.47	ALL, seasonal	Maintain
01S25Y	Existing	0.47	ALL, seasonal	Reconstruct
01S25YA	Existing	0.26	Closed	Reconstruct
01S26	Existing	1.95	HLO, seasonal	Maintain
01S26	Existing	2.92	HLO, seasonal	Reconstruct
01S26B	Existing	0.41	Closed	Reconstruct
01S26C	Existing	0.68	HLO, seasonal	Maintain
01S26E	Existing	0.21	HLO, seasonal	Maintain
01S28Y	Existing	0.32	ALL, seasonal	Reconstruct
01S30	Existing	1.24	HLO, seasonal	Maintain
01S30B	Existing	0.55	Closed	Maintain
01S32	Existing	0.18	ALL, seasonal	Maintain
01S32	Existing	0.26	ALL, seasonal	Maintain
01S32	Existing	1.65	ALL, seasonal	Reconstruct
01S36	Existing	1.37	ALL, seasonal	Reconstruct
01S36B	Existing	0.20	ALL, seasonal	Reconstruct
01S39Y	Existing	0.89	HLO, seasonal	Reconstruct
01S39YA	Existing	0.10	HLO, seasonal	Reconstruct
01S41	Existing	1.44	ALL, seasonal	Reconstruct
01S41A	Existing	0.52	ALL, seasonal	Reconstruct
01S48	Existing	0.52	ALL, year round	Maintain
01S48Y	Existing	0.72	ALL, seasonal	Maintain
01S49	Existing	2.38	ALL, year round	Maintain
01S49Y	Existing	0.11	Closed	Reconstruct
01S51	Existing	2.24	HLO, seasonal	Reconstruct
01S51B	Existing	0.71	Closed	Reconstruct
01S53	Existing	0.31	HLO, seasonal	Maintain
01S53	Existing	0.76	HLO, seasonal	Reconstruct
01S54	Existing	2.09	Closed	Reconstruct
01S57	Existing	1.96	HLO, seasonal	Maintain
01S58	Existing	2.47	Closed	Maintain
01S58B	Existing	0.52	Closed	Maintain
01S58D	Existing	0.08	Closed	Maintain
01S58F	Existing	0.70	Closed	Maintain
01S58G	Existing	0.07	Closed	Maintain
01S60	Existing	1.93	ALL, seasonal	Reconstruct
01S62	Existing	0.10	Closed	Maintain
01S62	Existing	1.33	Closed	Reconstruct
01S62A	Existing	0.39	Closed	Reconstruct
01S62Y	Existing	0.72	Closed	Reconstruct
01S62YA	Existing	0.30	Closed	Reconstruct
01S63Y	Existing	0.13	Closed	Reconstruct
01S63Y	Existing	2.25	Closed	Reconstruct
01S63YA	Existing	0.14	Closed	Reconstruct

Route	Status	miles	MVUM	Modified Alternative 4
01S64	Existing	1.60	ALL, seasonal	Reconstruct
01S66	Existing	1.80	ALL, seasonal	Reconstruct
01S66A	Existing	0.34	ALL, seasonal	Maintain
01S68	Existing	0.40	Closed	Reconstruct
01S68Y	Existing	0.63	Closed	Reconstruct
01S69	Existing	1.26	ALL, seasonal	Reconstruct
01S70	Existing	1.10	ALL, seasonal	Reconstruct
01S70	Existing	1.64	ALL, seasonal	Reconstruct
01S70A	Existing	0.34	Closed	Reconstruct
01S70B	Existing	0.42	ALL, seasonal	Maintain
01S71	Existing	1.65	ALL, seasonal	Reconstruct
01S72Y	Existing	1.16	ALL, seasonal	Maintain
01S73Y	Existing	0.85	Closed (mitigation)	Maintain
01S74	Existing	0.31	Closed	Maintain
01S74	Existing	0.73	Closed	Reconstruct
01S75	Existing	1.10	ALL, seasonal	Maintain
01S75A	Existing	0.37	ALL, seasonal	Maintain
01S75Y	Existing	1.56	ALL, seasonal	Reconstruct
01S75YA	Existing	0.69	ALL, seasonal	Reconstruct
01S75YB	Existing	0.32	ALL, seasonal	Reconstruct
01S76	Existing	1.65	ALL, seasonal	Reconstruct
01S77	Existing	1.12	Closed	Reconstruct
01S77A	Existing	0.21	Closed	Reconstruct
01S77B	Existing	0.27	Closed	Reconstruct
01S78	Existing	4.05	ALL, seasonal	Reconstruct
01S78A	Existing	0.81	ALL, seasonal	Reconstruct
01S79	Existing	0.09	Closed	Reconstruct
01S79	Existing	1.83	Closed	Reconstruct
01S79A	Existing	0.19	Closed	Reconstruct
01S80	Existing	1.94	ALL, seasonal	Maintain
01S80	Existing	0.87	ALL, seasonal	Reconstruct
01S80A	Existing	0.55	ALL, seasonal	Reconstruct
01S81	Existing	1.90	HLO, seasonal	Reconstruct
01S81A	Existing	0.58	Closed	Reconstruct
01S82	Existing	0.13	HLO, seasonal	Maintain
01S82	Existing	1.26	HLO, seasonal	Reconstruct
01S84	Existing	0.20	Closed	Reconstruct
01S85	Existing	1.68	ALL, seasonal	Maintain
01S88	Existing	0.28	Closed	Maintain
01S89	Existing	2.13	ALL, seasonal	Maintain
01S94	Existing	0.76	ALL, seasonal	Reconstruct
01S96	Existing	1.52	HLO, seasonal	Reconstruct
01S96A	Existing	0.22	HLO, seasonal	Reconstruct
01S98Y	Existing	0.10	Closed	Maintain
01S98YA	Existing	0.07	Closed	Maintain
01S98YA	Existing	0.03	Closed	Maintain
01S99Y	Existing	0.11	Closed	Maintain
02N03	Existing	0.54	ALL, seasonal	Maintain
02N04	Existing	1.08	HLO, seasonal	Reconstruct
02N04Y	Existing	0.43	ALL, seasonal	Reconstruct
02N05	Existing	1.66	ALL, seasonal	Maintain

Route	Status	miles	MVUM	Modified Alternative 4
02N05	Existing	2.13	ALL, seasonal	Reconstruct
02N05A	Existing	0.30	ALL, seasonal	Maintain
02N05A	Existing	2.27	ALL, seasonal	Reconstruct
02N05C	Existing	1.03	Closed	Reconstruct
02N05X	Existing	0.03	Closed	Maintain
02N06	Existing	4.49	ALL, seasonal	Reconstruct
02N06Y	Existing	0.78	ALL, seasonal	Reconstruct
02N06Y	Existing	0.39	Closed	Temporary Road
02N08Y	Existing	1.62	ALL, seasonal	Maintain
02N08Y	Existing	2.67	ALL, seasonal	Reconstruct
02N08YA	Existing	0.35	ALL, seasonal	Maintain
02N08YB	Existing	0.42	ALL, seasonal	Reconstruct
02N08YB	Existing	0.74	Closed	Reconstruct
02N08YD	Existing	1.22	ALL, seasonal	Reconstruct
02N10B	Existing	0.76	Closed	Maintain
02N10Y	Existing	0.03	HLO, seasonal	Reconstruct
02N10Y	Existing	4.17	HLO, seasonal	Reconstruct
02N10YA	Existing	0.28	Closed	Reconstruct
02N11	Existing	4.76	ALL, seasonal	Reconstruct
02N11	Existing	4.08	ALL, year round	Maintain
02N11	Existing	0.92	ALL, year round	Reconstruct
02N11B	Existing	0.10	Closed	Maintain
02N11C	Existing	0.45	ALL, seasonal	Reconstruct
02N11D	Existing	0.20	ALL, year round	Maintain
02N11E	Existing	0.76	Closed	Maintain
02N11F	Existing	0.60	ALL, year round	Maintain
02N11F	Existing	0.41	Closed	Maintain
02N12	Existing	0.75	ALL, seasonal	Maintain
02N13	Existing	1.13	ALL, seasonal	Maintain
02N13	Existing	1.11	ALL, seasonal	Reconstruct
02N13	Existing	0.31	Closed	Maintain
02N15	Existing	1.25	ALL, seasonal	Maintain
02N16	Existing	1.26	ALL, seasonal	Maintain
02N16A	Existing	0.43	ALL, seasonal	Maintain
02N18	Existing	1.47	HLO, seasonal	Maintain
02N20	Existing	1.44	ALL, seasonal	Maintain
02N20A	Existing	0.26	ALL, seasonal	Maintain
02N22	Existing	1.28	HLO, year round	Reconstruct
02N22A	Existing	0.76	ALL, seasonal	Maintain
02N23	Existing	0.97	ALL, seasonal	Maintain
02N23A	Existing	0.33	Closed	Maintain
02N24	Existing	1.62	ALL, seasonal	Maintain
02N24	Existing	1.66	ALL, seasonal	Reconstruct
02N29	Existing	2.26	ALL, seasonal	Maintain
02N29	Existing	2.12	ALL, seasonal	Maintain
02N29	Existing	1.49	ALL, seasonal	Maintain
02N29A	Existing	0.57	ALL, seasonal	Maintain
02N29Y	Existing	0.95	ALL, seasonal	Reconstruct
02N30	Existing	0.40	Closed	Maintain
02N30	Existing	0.47	Closed	Reconstruct
02N31	Existing	0.95	Closed	Maintain

Route	Status	miles	MVUM	Modified Alternative 4
02N31Y	Existing	0.66	ALL, seasonal	Maintain
02N31YA	Existing	0.51	ALL, seasonal	Maintain
02N31YB	Existing	0.07	ALL, seasonal	Maintain
02N32	Existing	2.79	ALL, seasonal	Maintain
02N33	Existing	1.15	ALL, seasonal	Maintain
02N40	Existing	2.53	ALL, seasonal	Maintain
02N40	Existing	0.36	ALL, seasonal	Reconstruct
02N41	Existing	0.36	ALL, seasonal	Maintain
02N43	Existing	0.33	ALL, seasonal	Maintain
02N43	Existing	0.23	ALL, seasonal	Maintain
02N43	Existing	1.50	ALL, seasonal	Reconstruct
02N44	Existing	1.43	HLO, year round	Maintain
02N44A	Existing	0.15	HLO, seasonal	Maintain
02N45	Existing	0.35	ALL, seasonal	Maintain
02N46	Existing	0.08	Closed	Maintain
02N46	Existing	1.32	Closed	Reconstruct
02N46A	Existing	0.10	Closed	Maintain
02N48	Existing	1.51	ALL, seasonal	Reconstruct
02N48A	Existing	0.49	ALL, seasonal	Maintain
02N52	Existing	1.69	ALL, seasonal	Maintain
02N52	Existing	0.33	Closed	Maintain
02N52A	Existing	0.11	Closed	Maintain
02N52A	Existing	0.43	Closed	Maintain
02N53	Existing	1.21	ALL, seasonal	Reconstruct
02N53A	Existing	0.34	ALL, seasonal	Reconstruct
02N54	Existing	0.48	ALL, seasonal	Maintain
02N54	Existing	0.15	ALL, seasonal	Maintain
02N54	Existing	2.79	ALL, seasonal	Reconstruct
02N56	Existing	3.44	ALL, seasonal	Reconstruct
02N56	Existing	0.29	Closed	Reconstruct
02N57	Existing	0.29	ALL, seasonal	Reconstruct
02N57A	Existing	0.07	ALL, seasonal	Reconstruct
02N58	Existing	0.70	Closed	Maintain
02N59	Existing	1.78	ALL, seasonal	Maintain
02N60	Existing	1.03	ALL, seasonal	Reconstruct
02N60	Existing	0.29	ALL, seasonal	Reconstruct
02N61	Existing	0.88	Closed	Maintain
02N62	Existing	2.77	ALL, seasonal	Reconstruct
02N66	Existing	0.31	ALL, seasonal	Maintain
02N66	Existing	2.67	ALL, seasonal	Maintain
02N69	Existing	0.08	ALL, seasonal	Maintain
02N76	Existing	0.63	ALL, seasonal	Maintain
02N76	Existing	0.86	ALL, seasonal	Reconstruct
02N77	Existing	0.20	Closed	Reconstruct
02N77Y	Existing	0.50	ALL, seasonal	Maintain
02N78	Existing	0.60	ALL, seasonal	Reconstruct
02N81	Existing	0.32	ALL, seasonal	Maintain
02N81	Existing	1.76	ALL, seasonal	Reconstruct
02N81A	Existing	0.16	Closed	Reconstruct
02N82	Existing	1.42	ALL, seasonal	Maintain
02N84	Existing	0.62	ALL, seasonal	Reconstruct

Route	Status	miles	MVUM	Modified Alternative 4
02N85	Existing	1.35	ALL, seasonal	Reconstruct
02N87	Existing	0.13	Closed	Maintain
02N94	Existing	0.16	ALL, seasonal	Maintain
02N94	Existing	1.87	ALL, seasonal	Reconstruct
02N98	Existing	0.10	Closed	Maintain
02N98A	Existing	0.26	Closed	Maintain
02S01	Existing	1.51	HLO, seasonal	Maintain
02S01	Existing	3.60	HLO, seasonal	Reconstruct
02S01A	Existing	0.92	HLO, seasonal	Maintain
02S01C	Existing	0.31	HLO, seasonal	Maintain
02S01D	Existing	0.51	Closed	Reconstruct
02S07	Existing	2.88	Closed (mitigation)	Maintain
02S07A	Existing	0.67	Closed	Maintain
02S15Y	Existing	1.01	ALL, seasonal	Maintain
02S19Y	Existing	0.33	ALL, seasonal	Maintain
02S19Y	Existing	1.37	ALL, seasonal	Reconstruct
02S19YA	Existing	0.51	ALL, seasonal	Reconstruct
02S19YB	Existing	0.31	ALL, seasonal	Reconstruct
02S25	Existing	2.07	ALL, seasonal	Maintain
02S25	Existing	1.36	ALL, seasonal	Reconstruct
02S25B	Existing	0.39	Closed	Reconstruct
02S30	Existing	0.26	other public road	Reconstruct
02S30A	Existing	0.18	HLO, seasonal	Reconstruct
02S30C	Existing	0.57	ALL, seasonal	Reconstruct
02S30E	Existing	0.46	ALL, seasonal	Maintain
02S35Y	Existing	0.33	HLO, seasonal	Reconstruct
02S35YA	Existing	0.06	HLO, seasonal	Reconstruct
02S38Y	Existing	0.38	ALL, seasonal	Maintain
02S40	Existing	1.36	ALL, seasonal	Reconstruct
02S50Y	Existing	0.73	HLO, seasonal	Maintain
02S51Y	Existing	1.90	ALL, seasonal	Maintain
02S51YA	Existing	0.55	ALL, seasonal	Maintain
02S60	Existing	1.93	ALL, seasonal	Maintain
02S60B	Existing	0.51	ALL, seasonal	Maintain
02S60C	Existing	0.21	ALL, seasonal	Maintain
02S62	Existing	5.60	ALL, seasonal	Reconstruct
02S62B	Existing	0.66	ALL, seasonal	Maintain
02S64	Existing	1.61	ALL, seasonal	Reconstruct
02S65	Existing	0.86	ALL, seasonal	Maintain
02S65	Existing	1.26	ALL, seasonal	Maintain
02S65	Existing	1.25	ALL, seasonal	Reconstruct
02S65A	Existing	0.36	Closed	Reconstruct
02S65D	Existing	0.22	Closed	Maintain
02S66Y	Existing	1.82	ALL, seasonal	Maintain
02S66YA	Existing	0.09	ALL, seasonal	Maintain
02S68	Existing	1.81	Closed (mitigation)	Reconstruct
02S68A	Existing	0.25	Closed	Reconstruct
02S68B	Existing	0.18	Closed	Maintain
02S68B	Existing	0.13	Closed	Reconstruct
02S72	Existing	0.47	ALL, seasonal	Reconstruct
02S87	Existing	0.01	Closed	Reconstruct

Route	Status	miles	MVUM	Modified Alternative 4
02S87	Existing	1.08	Closed	Reconstruct
02S88	Existing	0.78	ALL, seasonal	Maintain
02S88	Existing	0.29	ALL, seasonal	Maintain
02S88	Existing	1.31	ALL, seasonal	Reconstruct
02S89	Existing	4.95	ALL, seasonal	Reconstruct
02S93	Existing	2.52	ALL, seasonal	Maintain
03N01A	Existing	0.29	Closed	Maintain
03N01C	Existing	0.11	HLO, seasonal	Reconstruct
03N01C	Existing	0.47	Closed	Reconstruct
03N01G	Existing	1.00	ALL, seasonal	Maintain
03N01K	Existing	0.67	Closed	Reconstruct
03N01M	Existing	0.71	ALL, seasonal	Maintain
03N01N	Existing	0.37	HLO, seasonal	Reconstruct
03N01N	Existing	0.42	Closed	Reconstruct
03N01P	Existing	0.44	HLO, seasonal	Reconstruct
03N01Q	Existing	0.20	HLO, seasonal	Maintain
03N01R	Existing	0.56	Closed	Reconstruct
03N01S	Existing	0.36	Closed	Reconstruct
03N01T	Existing	0.17	Closed	Maintain
03N04Y	Existing	0.50	Closed	Reconstruct
03N07	Existing	0.25	ALL, seasonal	Maintain
03N21	Existing	1.53	ALL, seasonal	Maintain
03N22	Existing	1.90	ALL, seasonal	Maintain
03N22A	Existing	1.32	ALL, seasonal	Maintain
03N45Y	Existing	0.85	ALL, seasonal	Maintain
03N56Y	Existing	0.13	ALL, seasonal	Maintain
03N56Y	Existing	0.86	ALL, seasonal	Maintain
03N56Y	Existing	0.28	ALL, seasonal	Maintain
03N56YA	Existing	0.62	ALL, seasonal	Maintain
03N83	Existing	5.12	ALL, seasonal	Reconstruct
03N83	Existing	0.29	ALL, seasonal	Reconstruct
03N83A	Existing	1.02	ALL, seasonal	Maintain
03N83B	Existing	0.59	ALL, seasonal	Maintain
03N83C	Existing	1.44	Closed	Reconstruct
03N86	Existing	2.14	ALL, seasonal	Maintain
11705B	Existing	0.31	Closed	Maintain
11805A	Existing	0.09	Closed	Temporary Road
11806A	Existing	0.47	Closed	Temporary Road
11807A	Existing	0.08	Closed	Temporary Road
11821J2	Existing	0.69	Closed	Temporary Road
11824P2	Existing	0.10	Closed	Temporary Use - Revert
11833A	Existing	0.23	Closed	Temporary Road
11833D	Existing	0.29	Closed	Temporary Use - Revert
11833F	Existing	0.09	Closed	Temporary Road
11906G1	Existing	0.03	Closed	Maintain
11906G2	Existing	0.04	Closed	Maintain
11906G3	Existing	0.06	Closed	Maintain
17EV11	Existing	0.91	ALL, seasonal	Reconstruct
17EV11	Existing	0.33	Closed (mitigation)	Reconstruct
17EV34	Existing	0.27	ALL, seasonal	Reconstruct
17EV438	Existing	0.17	4WD, seasonal	Reconstruct

Route	Status	miles	MVUM	Modified Alternative 4
18DC429	Existing	0.08	Closed	Temporary Use - Revert
18DC431	Existing	0.08	4WD, seasonal	Reconstruct
18DC434	Existing	0.04	4WD, seasonal	Reconstruct
18EV274	Existing	0.80	ALL, seasonal	Reconstruct
18EV277	Existing	0.09	ALL, seasonal	Maintain
18EV400	Existing	0.57	4WD, seasonal	Reconstruct
18EV402	Existing	0.61	4WD, seasonal	Reconstruct
18EV407	Existing	0.22	ALL, seasonal	Temporary Use - Revert
18EV409	Existing	0.53	Closed (mitigation)	Reconstruct
18EV409	Existing	0.09	Closed (mitigation)	Reconstruct
18EV410	Existing	0.30	4WD, seasonal	Reconstruct
18EV411	Existing	0.19	ALL, seasonal	Reconstruct
18EV420	Existing	0.59	4WD, seasonal	Reconstruct
18EV422	Existing	0.12	4WD, seasonal	Reconstruct
18EV427	Existing	0.15	Closed (mitigation)	Reconstruct
18EV433	Existing	0.07	ALL, seasonal	Reconstruct
18EV435	Existing	0.51	ALL, seasonal	Reconstruct
18EV440	Existing	1.42	ALL, seasonal	Reconstruct
19DC124	Existing	0.13	4WD, seasonal	Reconstruct
19EV117	Existing	0.50	4WD, seasonal	Reconstruct
19EV129	Existing	0.23	4WD, seasonal	Reconstruct
19EV130	Existing	0.39	4WD, seasonal	Temporary Use - Revert
19EV135	Existing	0.55	4WD, seasonal	Reconstruct
19EV142	Existing	0.17	ALL, seasonal	Reconstruct
19EV148	Existing	0.44	4WD, seasonal	Reconstruct
19EV154	Existing	0.69	Closed	Temporary Road
19EV155	Existing	0.52	Closed	Temporary Road
19EV213	Existing	0.77	4WD, seasonal	Reconstruct
19EV214	Existing	1.26	4WD, seasonal	Reconstruct
19EV215	Existing	0.60	4WD, seasonal	Reconstruct
1S1806A	Existing	0.15	Closed	Reconstruct
1S1824	Existing	0.36	Closed	Temporary Road
1S1907A	Existing	0.39	Closed	Temporary Road
1S1922D	Existing	0.36	Closed	Temporary Road
1S1928A	Existing	0.12	Closed	Temporary Road
1S25YB	Existing	0.34	Closed	Reconstruct
21709O	Existing	0.28	Closed	Maintain
21801E	Existing	0.05	Closed	Maintain
21802N	Existing	0.20	Closed	Maintain
21812C	Existing	0.07	Closed	Maintain
21831A	Existing	0.07	Closed	Temporary Road
21907B	Existing	0.24	Closed	Maintain
21907B	Existing	0.20	Closed	Temporary Road
2S1815	Existing	0.51	Closed	Maintain
FR10142	Existing	0.03	Closed	Maintain
FR11091	Existing	0.07	Closed	Maintain
FR14878	Existing	0.27	Closed	Temporary Road
FR15090	Existing	0.07	Closed	Maintain
FR15120	Existing	0.12	Closed	Maintain
FR15120	Existing	0.04	Closed	Maintain
FR1981	Existing	0.27	Closed	Maintain

Route	Status	miles	MVUM	Modified Alternative 4
FR36710	Existing	0.60	Closed	Maintain
FR3993	Existing	0.07	Closed	Maintain
FR4100	Existing	0.13	Closed	Temporary Road
FR4875	Existing	0.08	Closed	Maintain
FR5230	Existing	0.68	Closed	Temporary Road
FR5310	Existing	0.09	Closed	Temporary Use - Revert
FR5318	Existing	0.05	Closed	Maintain
FR5473	Existing	0.23	Closed	Temporary Road
FR5606	Existing	0.55	Closed	Maintain
FR5766	Existing	0.15	Closed	Temporary Road
FR5817	Existing	0.47	Closed	Maintain
FR5818	Existing	0.27	Closed	Temporary Road
FR5819	Existing	0.03	Closed	Temporary Road
FR6469	Existing	0.25	Closed	Maintain
FR7208	Existing	0.03	Closed	Maintain
FR7209	Existing	0.04	Closed	Maintain
FR7209	Existing	0.30	other public road	Reconstruct
FR7858	Existing	0.46	Closed	Maintain
FR7955	Existing	0.05	Closed	Temporary Road
FR7965	Existing	0.21	Closed	Maintain
FR8430	Existing	0.01	Closed	Maintain
FR8591	Existing	0.05	Closed	Maintain
FR8592	Existing	0.25	Closed	Temporary Road
FR8593	Existing	0.34	Closed	Temporary Road
FR8594	Existing	0.25	Closed	Maintain
FR8597	Existing	0.09	Closed	Temporary Road
FR8611	Existing	0.36	Closed	Temporary Road
FR8781	Existing	0.17	Closed	Temporary Road
FR8799	Existing	0.24	Closed	Maintain
FR8988	Existing	0.22	Closed	Maintain
FR8992	Existing	0.11	Closed	Temporary Road
FR9357	Existing	0.15	Closed	Temporary Road
FR9573	Existing	0.19	Closed	Temporary Road
FR9582	Existing	0.23	Closed	Maintain
FR9712	Existing	0.01	Closed	Temporary Road
FR9713	Existing	0.25	Closed	Temporary Road
FR9723	Existing	0.12	Closed	Temporary Road
FR9723	Existing	0.13	Closed	Temporary Road
FR9724	Existing	0.17	Closed	Temporary Road
FR9725	Existing	0.14	Closed	Temporary Road
FR9726	Existing	0.16	Closed	Temporary Road
FR9727	Existing	0.39	Closed	Temporary Road
FR9734A	Existing	0.03	Closed	Temporary Road
FR9771	Existing	0.07	Closed	Maintain
FR9773	Existing	0.80	Closed	Temporary Road
FR9777	Existing	0.12	Closed	Temporary Road
FR9787	Existing	0.05	Closed	Maintain
FR98541	Existing	0.07	Closed	Temporary Road
FR99001	Existing	0.36	Closed	Maintain
FR99002	Existing	0.48	Closed	Maintain
FR99003	Existing	0.05	Closed	Maintain

Route	Status	miles	MVUM	Modified Alternative 4
FR99004	Existing	0.11	Closed	Maintain
FR99005	Existing	0.32	Closed	Maintain
P11807A-1	Existing	0.09	Closed	Temporary Road
P1N01-1	Existing	0.41	Closed	Temporary Road
P1N01A-1	Existing	0.40	Closed	Temporary Road
P1N11Y-1	Existing	0.21	Closed	Temporary Road
P3N01-3	Existing	0.11	Closed	Temporary Road
PFR8592-1	Existing	0.13	Closed	Temporary Road
Temp 1	New	0.66	Closed	Temporary Road
Temp 3	New	0.51	Closed	Temporary Road
Temp 9	New	0.17	Closed	Temporary Road
Temp 14	New	0.21	Closed	Temporary Road
Temp 14	New	0.19	Closed	Temporary Road
Temp 21	New	0.13	Closed	Temporary Road
Temp 23	Existing	0.27	Closed	Temporary Road
Temp 24	Existing	0.19	Closed	Temporary Road
Temp 28	New	0.51	Closed	Temporary Road
Temp 32	New	0.32	Closed	Temporary Road
Temp 36	Existing	0.58	Closed	Temporary Road
Temp 37	New	0.30	Closed	Temporary Road
Temp 38	Existing	0.12	Closed	Temporary Road
Temp 39	Existing	0.29	Closed	Temporary Road
Temp 40	New	1.02	Closed	Temporary Road
Temp 41	New	0.20	Closed	Temporary Road
Temp 42	Existing	0.16	Closed	Temporary Road
Temp 43	Existing	0.07	Closed	Temporary Road
Temp 44	Existing	0.28	Closed	Temporary Road
Temp 45	Existing	0.21	Closed	Temporary Road
Temp 47	New	0.37	Closed	Temporary Road
Temp 48	Existing	0.45	Closed	Temporary Road
Temp 49	New	0.26	Closed	Temporary Road
Temp 50	Existing	0.10	Closed	Temporary Road
Temp 51	Existing	0.74	Closed	Temporary Road
Temp 52	Existing	0.38	Closed	Temporary Road
Temp 53	New	0.18	Closed	Temporary Road
Temp 54	New	0.24	Closed	Temporary Road
Temp 56	New	0.49	Closed	Temporary Road
Temp 57	Existing	0.03	Closed	Temporary Road
Temp 59	New	0.16	Closed	Temporary Road
Temp 60	Existing	0.59	Closed	Temporary Road
Temp 61	New	0.18	Closed	Temporary Road
TR62328	Existing	0.29	Closed	Temporary Road
TR62331	Existing	0.15	Closed	Temporary Road

4WD=4 Wheel Drive; ALL=All Vehicles; HLO=Highway Legal Only MVUM=Motor Vehicle Use Map; Temp=Temporary. Blank entries indicate the item does not apply.